# Telephony.

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## PROFESSOR PUPIN'S NEW BOOK GIVES THE TELEPHONE HIGH PRAISE

A remarkable tribute to the telephone, and what its development has meant to America, is contained in a book just published which was written by Professor Michael Pupin. Professor Pupin has been professor of electro-mechanics at Columbia University since 1901, but he is better known to the telephone field as the inventor of the Pupin coil which made transcontinental telephony possible.

The title of his book is "Romance of the Machine," and its purpose is to refute the idea that the "machine civilization" of modern America has destroyed the idealism and the finer things of life in our country and made it sordidly materialistic. This idea is popular in Europe where the United States is envied for its industrial success.

The same idea, unfortunately, is also supported by certain of our own people who like to echo European criticism of America and imagine themselves vastly superior to those engaged in business. They crave the approval of the older—and slower—nations and to obtain it will sneer at America and its "dollar-chasers," but the record shows that these superior beings are not above accepting their incomes from American business sources.

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In his book Professor Pupin admits that the machine civilization has reached its highest development in the United States, but he declares that the worship of the machine is not the worship of a heathen idol. He cites scientific evidence that the whole universe is a machine of energy, and argues that the United States, above all other countries, has needed various kinds of machine inventions to develop properly—or, as he terms it, "to consolidate the Union by creating economic bonds between the various states."

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In a chapter entitled "Romance of the Telephone," Professor Pupin says that the service of the telephone in the consolidation of our Union was an epoch-making service.

"No other country availed itself of the consolidating power of the telephone as much as this country did," he writes. "No other country needed it as much. There is another epoch-making service which the telephone rendered to this nation. This service was the creation of a great American telephone industry which in many respects serves today as a model to other big American industries."

What he terms "consolidation of the Union" is, in Professor Pupin's opinion, the foundation stone on which rests the splendid success of our country. While not claiming to be an authority on the subject, he believes that the troubles of both Russia and China will never be permanently cured until they adopt the American motto: "Consolidation of the Union."

Then, with, plenty of American machines—including telephones, of course—both of these groping giants of nations will actually get somewhere.

Referring to the telephone industry again and to its stimulating effect on our national development, Professor Pupin says:

"The consolidation of the Union by the network of telephone and telegraph circuits which were gradually spread over the United States during the first 30-year period after the Civil War was wonderfully advanced during the second 30-year period.

* * * *

"With so marvelous a network of telephone circuits superimposed upon our extensive networks of railroads, automobile roads, steamboat lines and aeroplane routes, the United States represent a compact unit of nearly 120,000,000 people. They are, in many ways, just as compact a unit as a European nation. In addition to this physical consolidation created by machines—particularly by the telephone—we have the same language, the same educational system, the same national aspirations in every nook and corner of our vast territory."

* * * *

Professor Pupin notes with pride what the telephone has accomplished in fostering "industrial democracy" in this country. He thinks the principles of democracy are making more headway in industry than in politics, and asks if the election of an engineer to the presidency of the United States does not indicate that the people are turning towards scientists and business experts and away from partisan politicians.

"The tiny American machine, the telephone, crowned itself with glory by its wonderful service in the consolidation of

our Union," says the author, "An equally glorious achievement is its creation of a great industry which is developing so rapidly the new doctrine of economic democracy and exhibiting in practice its wonderful power.

"The world was greatly puzzled by this American machine when it was first exhibited at Philadelphia in 1876. Those who were devoid of vision considered it a mere toy. But there were many prophets who predicted a brilliant future for it; there was not, however, a single one among them who ever dreamed that this tiny machine would ever cover itself with the rare laurels which adorn its modest brow today. Its history reads like a romance, but, nevertheless, it is a record of actual events which occurred during the lifetime of many of us who are living today.

"The European critics of our machine civilization do not know the history of this wonderful American machine, nor do they understand the full meaning of the American industry it created. How can they, when this American invention and industry which it created never meant in any country of Europe what they meant and still mean here? Government ownership in Europe smothered the latent powers of European telephony."

"No other American industry is so typically American as our telephone industry. None of them employs a larger number of a more abundant variety of machines than this industry; hence, none of them represents better our American machine civilization.

"We are proud of our telephone industry and of our machine civilization which this industry represents so well. Our European critics will never understand our civilization until they have mastered the present structure as well as the past history of our telephone industry."

* * * *

An interesting chapter of Professor Pupin's book is devoted to the vacuum-tube oscillator which he says is "the backbone of the radio art of today." Without the vacuum-tube oscillator, he adds, "radio broadcasting would be impossible, and radio broadcasting is the breath of life of our American radio industry."

In this chapter Professor Pupin argues that there should be a merger of American radio and cable interests, as advocated by Owen D. Young and others during the Washington hearings on the communications bill. He recognizes the traditional aversion the American people have for a monopoly but believes it will eventually come if world-wide communication makes it necessary, because he is of the firm opinion that if universal peace is ever to be realized it will be due to the fullest use of the telephone and radio.

* * * *

"The two American machines, the telephone and the vacuum-tube oscillator, the two inseparable twins in the radio art, have been shaping—and they will continue to shape—our American civilization," says Professor Pupin. "They promise to shape the other civilizations of the world in a similar way. Their achievements so far justify the comforting hope that their latent powers will consolidate the nations of the world so that some day they will be, like the United States, one compact unit worshipping the same ideals, and all yearning for peace on earth and good will among men."

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The Pupin book closes with a chapter on "Romance of the Gas Motors." Its most colorful scenes, however, are painted to describe a world where war is forever outlawed because of the complete development of what he quaintly terms "the heavenly twins, the two American machines, the telephone and the vacuum-tube oscillator."

The volume offers a conclusive answer to the charge that America is building a machine civilization that will prove harmful to our people as a nation.

## COMING CONVENTIONS

**Indiana Telephone Association, Indianapolis, Claypool Hotel, May 6 and 7.**

**Kansas Telephone Association, Topeka, Hotel Jayhawk, May 13, 14 and 15.**

**Pennsylvania State Telephone & Traffic Association, Penn-Harris Hotel, Harrisburg, May 13, 14 and 15.**

**Up-State Telephone Association of New York, Seneca Hotel, Rochester, May 21, 22 and 23.**

# Iowa Holds Its 35th Annual Convention

## Independent Telephone People of Iowa Enjoy Fine Annual Meeting at Des Moines—New Constitution Adopted—Interesting Divisional Meetings of Men and Women—Excellent Program at General Sessions Interested Everyone

By Stanley R. Edwards

It was summer time in Iowa last week when the 35th annual convention of the Iowa Independent Telephone Association was held in Des Moines. The official temperature reading on the last day of the convention was 93 degrees. The roads were in excellent condition and this was responsible for the attendance of many. On the other hand, the summer weather undoubtedly kept some away to do work which is ordinarily done in the summer season.

The convention was held at the Hotel Fort Des Moines on April 8, 9, and 10, and the registration totaled about 250, everyone of whom was greatly interested in all the convention activities.

At the business session on Monday afternoon, an important action was taken in adopting a new constitution. Under the new constitution, 15 directors comprise the board of the association instead of 13. The officers are elected by the board of directors instead of by the convention. The directors are elected for a term of three years but this year, five were elected for a three-year term, five for a two-year term and five for a one-year term. In future years, five directors will be elected each for a three-year term.

The directors elected this year are: For three-year term, Earle D. Bellamy, Knoxville; George E. Atkinson, Creston; J. H. Denkhoff, Dyersville; P. C. Holdoegel, Rockwell City; Lester Myers, Woodbine.

For the two-year term, W. L. Agee, Marengo; J. E. Lynch, Sac City; H. B. Melick, West Liberty; J. M. Plaister, Fort Dodge; C. W. Quillen, Mount Pleasant.

For the one-year term, H. R. Christianson, Albia; J. M. Mitchell, Tama; F. G. Moore, Newton; J. M. Shea, Emmetsburg, and Phil Zerwas of Manning.

At a meeting on Wednesday afternoon, the directors re-elected Earl D. Bellamy as president. J. M. Plaister of Fort Dodge and H. B. Melick of West Liberty were elected vice-presidents, and C. C. Deering was re-elected secretary-treasurer. Mr. Deering has served continuously in this position since 1913 and at a previous period held the position for eight years.

The program was made up of several different parts. On the first day the reports of the officers were received and committee appointments announced. The second day, which consisted of two sessions, was given over to several excellent addresses on general subjects and an exceptionally interesting demonstration of the

power-arc follow up. The third day was devoted to open forums and round table discussions, during the course of which a number of individual problems were presented and the solutions pointed out.

The operators' conference, which in the absence of Miss Anne Barnes, due to illness, was conducted by Miss Nelle Roberts of Rockwell City, was especially well attended, between 60 and 70 operators, chief operators and supervisors being in attendance.

The annual banquet, entertainment and dancing party on Wednesday evening was attended by about 350 telephone people and guests. And as usual the evening was thoroughly enjoyed by everyone.

The first session of the convention was called to order about 2:30 on Tuesday afternoon by President Earle D. Bellamy, of Knoxville. The report of Secretary-Treasurer Chas. C. Deering was the first order of the program.

**The Secretary's Report.**

Secretary Deering referred to the creation by last year's legislature of the Iowa Board of Assessment and Review and of the appointment of its members. Telephone assessments were made soon after the appointments were announced. The new board did not have time to study the telephone situation, so assessments were made on the same general lines as in previous years.

"This new board," said Mr. Deering, "has made a splendid start on its very large and important job. It is now ready to approach the problem of telephone assessments and an informal conference between the board and representatives of the telephone companies will be held this week."

"The secretary's office has been called on, as usual, for information and assistance on a wide variety of subjects," he continued. "The two subjects that have brought the most inquiries during the year are telephone exchange franchises and high-line franchises.

Twenty district meetings were held last fall—well-distributed, geographically, over the state. Five hundred and seventy-one women and 468 men registered at these meetings—a total of 1,039. At each of these meetings the Northwestern Bell Telephone Co. gave a demonstration of the effects of various kinds of trouble on transmission, together with an interesting talk.

At each meeting there was held a round-table conference for the discussion of subjects that appealed to those present. A subject that came up at most of the meetings was that of rural service and rural rates. The opinion was frequently expressed that rural service improvements have not kept up with exchange service improvements.

As a part of these district meetings, operators' meetings were conducted by Miss Barnes, working under the auspices of the engineering extension department, Iowa State College. We are indebted to the college for its long continued assistance to us in the operators' schools.

Proposed federal legislation has interested us during the last year. The Couzens bill, S. 6, proposes the creation of a new federal commission, the communications commission. This bill is in the hands of the Senate interstate commerce committee which has held a long series of hearings. The telephone people generally

**Earle D. Bellamy, of Knoxville, Was Re-elected President of the Iowa Association for the Third Term.**

are opposed to the measure. Your secretary and various other telephone men appeared before the committee in February. It appears likely that nothing will be done with this bill at this session of Congress but Senator Couzens has announced that the rewritten bill will be presented at the December session.

Your board of directors has held quarterly meetings during the past year and thus has kept in touch with one another and with association activities. The association is in a position to render more service and service to more of its members. Make use of your association!"

Following Secretary Deering's report, President Bellamy discussed the telephone situation and conditions in Iowa. He made a number of valuable suggestions to the member companies and in closing urged them to make greater use of the association's staff of employes.

**President's Annual Address.**

"The year just passed has produced but very little excitement in the Independent telephone field of Iowa," said he in opening his discussion. "The ownership of Independent property is practically the same as last year. The buying wave has been almost absent. The year was an off one politically; and with no session of the legislature the industry has not been concerned from that standpoint. While there has been nothing of an external nature to disturb us, there has according to reports been a great deal of substantial improvement in plant of all kinds and some improvement in rate structures.

The metallicizing of grounded lines by several Independent companies and also the Northwestern Bell company has shown a marked increase during the year. This type of farm service seems to have become standard at a rate of $24 a year, which provides a better gross revenue than most of us are now receiving, and also provides a very much higher type of service.

**Major Problems of Industry.**

"To me, the grounded line, the switched line, the small non-paying poorly-operated exchange and the lack of adequate rates still are the major problems of our industry, and they are the things that we as an association should strive to correct. Of course, we cannot change all these conditions at once; but by keeping them always in mind, more stations will be improved every year. We will be furnishing a better service and, what is more important, receiving a better rate for it. That should be our duty to the patrons, to our employes and to the capital invested in our business.

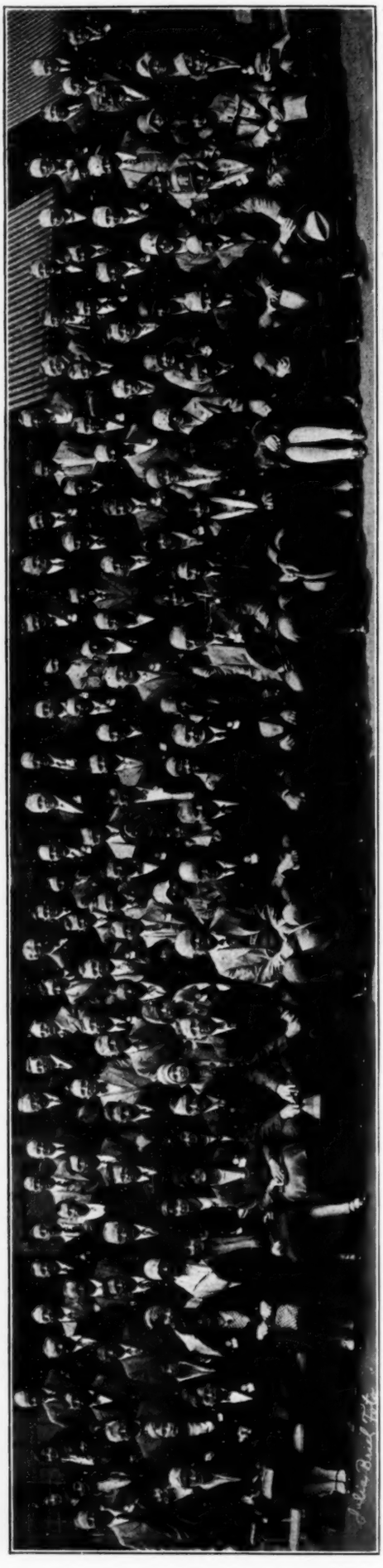
The grounded line is as old-fashioned as a harness shop; you cannot prevent electrical interference on it; you cannot impose the better features of the modern service on it, and it also complicates and handicaps all interconnections through our switchboard. It should now be apparent to us all that high tension lines are soon to be built to most farms. The development along this line during the past year has been tremendous. The time is certainly not far distance when the grounded line will, by force of necessity, be ruled off the highways or the patrons will be forced to accept a second-class service.

The switched line provides a dual ownership and responsibility which has fundamental disadvantages that interfere with and oftentimes prevent proper service. The good of the industry and the quality of service would seem to demand the operating company should own these lines and be entirely responsible for their operation.

**The Small Exchange.**

"The proper method of operating a small exchange is one of the hardest problems we have to figure out. I have often heard it asked how small an exchange can be profitably operated. In a general way, any exchange which cannot profitably furnish a 24-hour service is too small to be operating as a separate unit, and some method should be found whereby the subscribers can be taken into a larger area where they will receive a much superior service.

Just what method will be followed as these small exchanges are abandoned is hard to say. Whether we will take them over directly, on a basis similar to farm-line operation, to some larger exchange; or by means of automatically-operated plants



Despite the Many Sales of Iowa Properties to Syndicate Companies, There Was an Unusually Large Attendance at the Convention of the Iowa Independent Telephone Association, April 8, 9, 10.

for their local conversations, and trunks to the larger exchange for other traffic, still remains a problem for both the operator and the technical man of the business to work out.

There is a suggestion in connection with this small plant question which I would like to leave with the convention: The electric companies and the gas companies have found it both practical and feasible to operate their small towns from a central plant by building a high line or a pipe line from some central plant and either selling current, or gas as the case may be, wholesale to the operators of the small plant or retailing it themselves at the distant point. It does not seem to me at all improbable, if telephone patrons demand a standard grade of service, that we may find it expedient to do something of this kind.

A small company could be connected by cable to some adjacent plant, furnishing a proper grade of service and pay for its switching wholesale from the large plant at less than it costs to maintain and operate its exchange on a standard basis, provided they give first class service; or we who own small plants may bring them to a central point and find, as have the electric and gas people, that the annual charges on the investment to do this are less than the cost of maintaining a separate exchange.

All these suggestions assume that sometime in the near future we will find it both necessary and profitable to furnish all telephone patrons with standard, modern service.

**Adequate Revenues.**

"How to get adequate revenue so we can pay the salaries and wages to which a proper knowledge of the operation of our business entitles us, so that we can pay a fair rate on the capital invested in the business and provide for its continuance is, of course, always a problem. There are only three methods of getting more revenue per station that now occur to me:

First, we can raise our rates, and in a great many instances this should be done.

Second, we can sell more service such as extension telephones on our present facilities, which should be done.

Third, we can persuade the Bell group to allow us a greater proportion of the gross toll business which we feed onto their lines.

The national association has been making some studies in other states along this line and it is possible that before long we will receive more revenue from this source. Certainly, under present operating conditions, we are justified in asking for a greater proportion of the gross toll business which we handle.

Any company that is handicapped by a lack of income which prevents its paying proper salaries and wages, which prevents its making a fair return so that its property can be maintained on the right basis and built to a proper standard, can undoubtedly better its position by any one, or better, by all three of these suggestions. In most all cases in Iowa Independent telephone plants, I believe that all three methods are justified and should be put into effect.

**The Tax Situation.**

"Of immediate and major importance to all in the telephone industry, as it is to all business, is the present tax situation in Iowa. Tax revision is about the only issue being discussed by the present candidates for governor. The state recently created a tax commission and a legislative tax committee was created by the last legislature to investigate the tax question in Iowa and suggest plans for tax revision.

The tax committee recently notified our secretary that it desired a conference with the directors and officers of this association in the near future for the purpose of considering telephone taxation, so we will be up to the problem very soon. I feel we need have no fear that we will not receive fair consideration and a proper adjustment of our situation, if any be necessary. I say this because of the way in which the tax commission and legislative tax committees have gone about the solving of this question.

They have indicated a desire to treat all interests fairly. They have held hearings all over the state with all classes of interests; have sought information and have indicated in every way that their idea is a fair equalization of taxes. After all, equalization is a thing we all want to accomplish and equalization, aside from economical administration is the sole problem to just taxation.

I feel that we telephone people should meet these bodies frankly and assure them of our desire to assist in every way with the question of telephone taxation and to assist them to work out an economical scheme of assessment and collection. I have confidence that we will do this and also that our tax situation will be worked out fairly, considering all interests and other property in the state.

The paid part of the association has had a very busy year. More district meetings have been held than ever before and they were uniformly better attended. The secretary's office has answered many communications, furnished valuable information, made appearance before the Iowa Railroad Commission, taxing boards and

other public bodies and in a great many ways rendered real assistance to individual members.

We should, I believe, make a larger use of the association employes. Miss Barnes is always of value to any office, and our secretary's long experience and personal knowledge of the Iowa telephone situation is at all times available to any member. This is our association and our organization. All members should use it whenever they feel the need of help or information on any telephone question."

Upon conclusion of President Bellamy's address, Secretary Deering read the names of five companies which had applied for membership and recommended their admission. Upon motion the applications were favorably received.

Some figures taken from reports of 12 Iowa companies were given by Secretary Deering. They showed revenues per station varying from $20.28 to $33.20 per year. Taxes per telephone ranged from 84 cents to $1.58. The percentage of tax to revenue was from 3.33 per cent as a minimum to 4.84 per cent as maximum.

President Bellamy asked the secretary to read the draft of the association's constitution as recommended by the board of directors for association action. The constitution was adopted in 1911 and has been amended several times since but never reprinted and it was believed that it should be done.

After some discussion following the reading, the constitution as recommended was adopted.

The various committees were then announced by President Bellamy following a motion to that effect:

Resolutions: P. C. Holdoegel, Rockwell City; O. L. Loudenslager, Le Mars; and C. W. Quillen, Mt. Pleasant.

Nominations: J. M. Plaister, Fort Dodge; J. H. Denkhoff, Dyersville; and Lester Myers, Woodbine.

**The Wednesday Morning Session.**

The Wednesday morning session opened with the showing of a motion picture entitled "Hello Europe," after which President Bellamy with a few introductory remarks, presented F. B. MacKinnon, president of the United States Independent Telephone Association, as the first speaker. In his preliminary remarks, Mr. MacKinnon referred to the convention of the Iowa association held in 1908 and stated that the names of a number in attendance at this year's meeting appeared in the minutes of the 1908 convention.

He mentioned that Perry C. Holdoegel of Rockwell City was president; Charles C Deering, secretary, while J. M. Plaister of Fort Dodge and O. L. Loudenslager of Le Mars were on the board of directors. The chairman of the board was J. S. Bellamy, father of the present president of the Iowa association.

Mr. MacKinnon declared that he was impressed with the permanency of the industry and the permanency of its personnel and he wondered if the fathers were training their sons in the position of the industry so as to carry it on in the future.

The testimony presented before the Senate interstate commerce committee in Washington relative to the cable business with Europe was touched upon by the speaker and the statement of President Newcomb Carlton of the Western Union company relative to the cable capacities of the present and future quoted. President Carlton in his testimony stated that the telephone cable now being planned by the A. T. & T. Co. to connect America with Europe will be of such capacity that during its idle hours it will have sufficient capacity to take care of all the business that is now carried by all the cables now existing between the two continents.

**Secretary Charles C. Deering, Reelected at the Iowa Convention, Has Served in That Position Continuously Since 1913.**

International telephony, Mr. MacKinnon declared, is bringing about a greater interest in national telephony. In their testimony before the Senate committee, the Independents pointed out that every one of the 15,000 Independent exchanges of the country takes part in interstate business.

"In what shape are we in and responsible to render national service and international service all over the world?" the speaker asked.

"Our system has been built up from a local to a county system and then to state and a national system. We never know when we will be called upon to handle an interstate message, and we are coming to an inter-country business.

Our great problem is the rebuilding of small exchanges and putting them on a stable, paying basis. The solution of the problem of doing this by the installation of equipment has been suggested, but the question then comes up, 'Where will we get the money?'"

Many small exchanges are operated for the benefit of the public and not of the company. Frequently they have been operated only for revenue sufficient to pay the salary of the manager, the speaker stated in discussing the financial aspects of small exchanges.

Mr. MacKinnon referred to a solution of the question, "Where will we get the money?" suggested by an Iowa man and published in TELEPHONY of November 30, 1929. In this communication in TELEPHONY it was pointed out that the writer could buy practically everything on the installment payment plan. His house, his automobile, radio, electric refrigerator and other things had been so purchased, but when he came to buy cable, a ringing machine, a new switchboard for his telephone plant, he found that it all had to be paid for within 60 or 90 days.

Acting upon the thought presented, Mr. MacKinnon has arranged for a conference of various manufacturers with the idea of providing a means by which the owners of small plants may obtain the material for rebuilding under some sort of an installment payment plan. He declared that the question, "Where can I get money to rebuild?" must be answered, and this suggestion of an Iowa man offers a practical means of solution. Under such a plan it seems telephone properties may be rebuilt and take care of the telephone business of the country.

In discussing the Couzens bill providing for a federal communications commission, Mr. MacKinnon stated that the question will come up continually in Congress. He pointed out that the radio business has developed with a bound and those in it owe their places through their control of patents. Today the radio business is a patent battle—a manufacturers' battle for control of the situation.

"The telephone men," the speaker stated, "said to the committee, 'Don't mix us up with the radio interests who are fighting among themselves. Radio is not a communications business and should not be confused with a real communications business.'

"When the entire picture of the telephone business was presented, the committee saw a picture they had not seen before."

Mr. MacKinnon advocated that the Iowa telephone men write to Senator Brookhart, giving their idea as to federal regulation.

"Let's all stand together, if we can against this communications bill," he urged. "When the radio industry quiets down and becomes stabilized, then federal regulation may come, but until then, let's maintain ourselves separately."

The speaker pointed out that in 20 years only half a dozen telephone cases have been brought before the Interstate Commerce Commission. The commission has functioned well in the county, he declared, and if the accounting of telephone

companies is controlled, regulation is accomplished.

"The state commissions have adopted the Interstate Commerce Commission's system of accounting and today we have practically uniform accounting. The Independent group is practically following one accounting system, and that is most effectual regulation," said he in closing.

**J. M. Plaister of Fort Dodge, Who Has Been in Association Work for a Number of Years, Elected Vice-President at the Recent Convention.**

The report of the nominating committee was presented by J. M. Plaister of Fort Dodge, who stated that due to the adoption of the new constitution, 15 directors were to be elected. In subsequent years, however, five directors will be elected for a three-year term. In order to bring this about, five directors were nominated for a three-year term, five for a two-year term and five for a one-year term.

Mr. Plaister read the list of suggested nominations and no other name being suggested from the floor, he moved the suspension of rules and that the secretary cast a unanimous ballot for the nominees. This motion was carried and the directors named declared elected. The names have previously been given.

An exceptionally interesting talk and demonstration on the power arc follow-up was given by H. H. Carl of the Northwestern Bell Telephone Co., Des Moines. Mr. Carl in his preliminary remarks stated that there are two types of interference—by induction and by conduction. His remarks and demonstration applied to the latter type of interference.

The demonstration which followed dealt mainly with clearance between telephone and power circuit. It was presented in three parts, the first dealing with the protection of telephone and electric supply systems, the second with the effect of lightning discharge on the telephone circuit only and with the power arc follow-up, and the third gave examples of unsafe construction practices with the correct practice.

Mr. Carl, in his descriptions of the protective equipment of both telephone and electric systems, was very clear in his explanations and in the demonstrations that followed carefully explained the results and the causes for them. This was a most valuable feature of the program and Mr. Carl's remarks were very closely followed by everyone.

Louis H. Cook, chairman, Iowa Board of Assessment and Review, was the last speaker on the morning program, on the subject "Assessment and Taxation Problems." Mr. Cook explained the functions of the new assessment board and told of the policies which it will follow.

Under the law the board has wide discretion in fixing values and he stated that the basis of valuation will be as near as possible what a property is actually worth. He declared that taxation is not a political matter, but is a business problem and that so far the activities of the board have been beneficial.

In closing, Mr. Cook again declared that the policy of the board is to make an assessment that the men whose property is involved, know is fair. It is not inclined to permit anyone to take advantage of technicalities.

**Wednesday Afternoon Session.**

A motion picture showing methods and details of the underground toll cable construction of the Northwestern Bell Telephone Co. in Iowa was the first number on the Wednesday afternoon program. Following this, President Bellamy introduced H. A. White, manager, Kansas City branch, American Electric Co., Inc., to discuss "Rural Service Problems."

Mr. White commented on various points relative to magneto and common battery service and pointed out that it is better to lead subscribers to a higher rate than it is to allow them to drive a company to better service. He expressed the belief that in some instances in common battery installations, more equipment—and hence more expense—is installed than is absolutely necessary. Mr. White's paper appears in full on other pages of this issue.

"Paying for Our Roads Out of Their Earnings" was the subject of a detailed address on the Iowa roads of the past, present and future by Fred R. White, chief engineer, Iowa State Highway Commission, Ames.

Mr. White showed that in 1920 there were only about 25 miles of paved roads in Iowa outside of the cities. He declared that the plant was inadequate, inefficient and the cost to operate high.

The legislature in 1925 provided the highway commission with more funds and said in effect: "Give us better service and improved plant, and we'll give you better rates." The gas tax was passed, and in 1929 only 19.9 per cent of the road system in Iowa was unimproved. This year the commission has a program for building 1,000 miles of paved road, the largest of any of the states.

Mr. White in his address contrasted the road system with the telephone plant. He showed how the income increased in the 10-year period from 1920 due to the increase in rates (gas tax) and business. The increased rate was granted on the theory that an improved and greater service would be given.

The closing talk of the afternoon session was delivered by L. C. Oberlies, personnel director, Lincoln Telephone & Telegraph Co., Lincoln, Neb., on the subject, "A New Conscience in Industry." Mr. Oberlies' talk was declared one of the outstanding addresses of the meeting and was attentively listened to by a "crowded house," the traffic conference having adjourned in order to hear Mr. Oberlies.

The speaker divided his address into three parts, discussing each in turn. The first considered the company's attitude toward the public; its attitude toward industry, and third its attitude toward the employe. He illustrated the different sections of his address with exceptionally well-selected stories that not only appealed to the humorous side of the audience but brought out practical points.

"Big business," declared Mr. Oberlies, "is a public trust. The telephone business is a public trust, and that attitude should be construed in its service." He closed in defining the object of personnel work as the "We, Us & Co. Spirit."

**H. B. Melick of West Liberty, Prominent in Telephone Work for Many Years, Was Elected Vice-President.**

Following the address of Mr. Oberlies, the session adjourned and many visited the new office and exchange building of the Northwestern Bell Telephone Co.

Wednesday evening was given over to

(*Please turn to page* 28.)

# The Telephone System: Important Phases

## Part III of Section of Forthcoming New Volume, "Telephone Theory and Practice," Parts of Which Are Being Given Advance Publication in "Telephony"—Developments Taking Place With Respect to Telephone Lines and Cables, Etc.

By Kempster B. Miller

In thus briefly tracing the development of the telephone per se and of central office switching, it must be kept in mind that no less radical and no less important developments have been simultaneously going on with respect to the lines that connect the subscribers with the central office and also with those that connect distant central offices with one another.

**The Telephone Line.**

In the early days of telephony, the fact previously discovered by Steinheil that the earth could be used for the "return" conductor of an electric circuit, was made use of in telephony, as it already had been, and still is in telegraphy. Accordingly, a single wire was used for the line and this was connected to earth through the terminal instruments at each end to effect the return path. Such lines are termed "grounded lines."

At first also outside telephone lines were made of iron. Ordinary copper wire was recognized as being a far better conductor and also as being non-corrosive under weather conditions, but it had too little tensile strength to stand the stresses incurred in open wire construction.

An important step was taken by Thomas B. Doolittle, who as early as 1877 experimented in the direction of making a sufficiently strong wire of copper by the simple expedient of omitting the annealings between the successive drawing operations. Hard-drawn copper wire, as resulting from Doolittle's investigations, has become the accepted standard for aerial telephone line wire, except in the case of relatively short and less important lines where iron, on account of its cheapness, is still used to a considerable extent.

The grounded line almost proved the undoing of the telephone business in its early days. With it strange and unaccountable noises were heard in the telephone instruments, some of which even today are only imperfectly understood. Some of these noises were due to natural phenomena, others to "man-made" causes.

Of the former, induced currents from distant lightning, and earth currents probably due to changes in the earth's magnetic field, may be mentioned. Of the latter, induction and leakage currents from telegraph or other telephone lines were at first the principal if not the only ones. But these were soon supplemented by the far more devastating effects of stray and induced currents from the electric railway, to say nothing of the induction from electric light and power distribution systems.

The sole remedy for all this trouble from external sources was found to be in the use of the "metallic circuit." This means a circuit formed of two wires of equal size and the same material, placed as close together as practicable and occupying as far as possible equal average distances from all external disturbing sources.

In spite of the increasing difficulties, the general use of grounded lines persisted for more than a decade, partly because of the obvious economy of using one wire instead of two and partly because of uncertainty as to the real remedy. The coming of the electric railway in the late 80's precipitated the issue. Litigation with the railway companies ensued, in which the telephone interests finally lost.

Regardless of the legal aspects, it is now easy to see that the only common-sense thing for the telephone companies to do was to adopt the metallic circuit. The grounded line system is still used in the comparatively few rural communities that are remote from other interfering electrical systems.

There are to be found many grounded rural lines in the Middle West and mountain states. As power transmission lines are increasing in number every year, the grounded telephone lines are being converted to metallic circuits as rapidly as the companies can finance them and obtain the higher rates necessary for providing the improved service.

The elimination of line disturbances was not the only problem with respect to telephone lines. Another was that of wire congestion. Practically all outside line wires were suspended from house-top fixtures, chimneys and poles. There was no system to it. The wires ran helter-skelter, with slight attempt at orderly arrangement. The congestion and the confusion constantly increased with the growing number of telephones, and the adoption of metallic circuits, while curing one trouble, made this one worse.

The tangle of overhead wires in the downtown areas of cities became a menace to life and property, to say nothing of its bad appearance. To clean up this mess, and to provide for the great expansion to come, was an Herculean task. There was no experience to serve as guide, for never before had the necessity arisen of placing so many wires in such close proximity with one another.

The development of the technique for the orderly and effective arrangement of bare wires on poles and for the placing of a large number of wires in cables and disposing these overhead, under ground or under water, has been one of the ever-present problems of telephony. Its various phases cannot be even referred to in the outline sketch of this chapter; but to illustrate the nature of some of the problems involved and of some of the results achieved, the development of one item alone, telephone cable, will be briefly mention.

**Telephone Cable**

The use of bare wires demands a considerable separation of the wires from one another. One reason for this is the necessity of preventing actual contact when they are violently agitated by wind or other causes. This separation that is a requisite of "open wire construction" is at variance with the space economy that is essential when it becomes necessary to place a large number of wires in restricted space.

Out of such consideration arose the demand for telephone cable, wherein a large number of wires, carefully insulated from one another are bound closely together under a common covering. This had been done to a limited extent in telegraphy; but when the single-wire telephone lines were thus treated, it was found that their talking efficiency was impaired or ruined, and also that whatever was said on one wire could be heard almost equally well on all the others, a phenomenon known as "crosstalk." These facts alone would have sounded the death-knell of grounded circuits even in the absence of other considerations.

At first it was thought that the remedy for crosstalk and other inductive disturbances in cable was to be looked for in the character of the insulation, but finally it was learned that the panacea was to use two-wire circuits throughout, the wires being twisted together so as to produce a complete transposition every few inches.

Naturally rubber, on account of its high insulating and moisture-resisting properties, was one of the early materials used for insulating the cable wires. This was objec-

### Distinction in Reading.

**We must make a distinction between what we read for our information and what we read for our formation; between what we want for our use and what we need for our development.**—Ernest Dimnet.

tionable on account of the high specific inductive capacity of rubber and also of its high cost. Obviously, on account of its low specific inductive capacity, air would be the ideal insulation, but it does not afford the mechanical properties necessary to keep the wires apart.

A loose wrapping of paper was found to be the closest approach to this ideal. It afforded the necessary mechanical separation, was of itself a good insulator, and its many interstices contained a large amount of air. Dry paper, however, is exceedingly susceptible to moisture, and moisture is ruinous to high insulation. This difficulty was overcome by enclosing the bundle of wires in a continuous lead pipe, forming an air-tight sheath. This is the cable now universally used for the wires of telephone lines.

Early cables had a maximum capacity of about 50 pairs of wires. Later, 200-pair, 400-pair and 600-pair cables were successively evolved, the limiting outside diameter remaining approximately the same—somewhat less than three inches. At this stage the increase in size stopped for about a decade, but the progress toward a larger number of pairs was again resumed and we now have 1200-pair cables containing over 2400 wires. Cables of 3636 wires of No. 26 gauge are now being used in the larger cities for relieving conduit congestion.

The economies resulting from this cable development have been enormous. They are due not only to the saving in copper and other material, but to other factors, such as the saving in poles or underground ducts. Some idea of what the use of this type of cable has meant in the telephone business may be gained from the fact that a single one of these cables, less than three inches in diameter, may be made to carry as many wires as, with ordinary open-wire spacing, would be carried on 20 parallel pole lines each having 12 10-pin crossarms.

The constantly-increasing demands for cables carrying more and more wires brought other problems than those involved in making, putting in place, and maintaining the cables themselves. The limiting diameter of the cable remaining the same, more wires have meant smaller wires with consequently increased electrical resistance; and more crowding together of the wires has meant greater electrostatic capacity between the conductors of a pair. These changes were in themselves deleterious to the transmission efficiency of the conductors as affecting both speech and signals.

In order to maintain the required overall standard of transmission for long-distance as well as local communications, more powerful transmitting devices, more sensitive receiving devices, and more auxiliary devices were necessary, all working toward a system of balanced economy.

Conversely, each improvement in transmission equipment has at once been met with the demand for cables with a greater number of connections; the improved transmitting efficiency of the apparatus permitting a further sacrifice in conductor efficiency without over-stepping the limiting requirements of satisfactory telephonic transmission. Nothing could better illustrate the inter-relationship between the various parts of a telephone system.

So far this outline has considered the telephone line merely so far as it affords a conducting path, in the ordinary sense, from one place to another. There remains to consider the very important work that has been done toward improving the *effectiveness* of the line. These efforts have taken three directions:

a. To make the line a better path for telephone currents. This has led to the practice called "loading."

b. To reinforce the energy supplied to the line at various points along its length. This has resulted in the "telephone repeater."

c. To make a given line carry more than one message at a time. From this has grown "phantom," "simplex," and "composite" circuits, and finally "carrier current" systems.

### Loading

Every telephone line has a certain electrostatic capacity. The two wires may be considered as forming the plates of a condenser and the insulation between them the dielectric. This electrostatic capacity instead of being localized, as in an ordinary condenser, is distributed throughout the length of the line. This distributed capacitance has a deleterious effect on the transmission of rapidly varying currents.

It will be shown also that inductance coils likewise have a deleterious effect on the passage of such currents through them; and that in a general way, inductance and capacitance act oppositely in producing these bad effects.

Oliver Heaviside, the great British mathematician and physicist, suggested that these opposing effects might be made to neutralize each other in the transmission of rapidly-varying currents. It was not until 1899, however, that Michael Ivordorski Pupin showed exactly how the distributed capacitance of a telephone line could be neutralized for a given range of frequencies by the employment of inductances of specific amounts located at stated intervals along the line.

Pupin showed the way and formulated it. His work was taken up by Campbell and other mathematicians, physicists and engineers of the American Telephone & Telegraph Co., who have developed the art of "loading" to its present high state of efficiency.

The economies resulting have been enormous. The use of loading coils permits very much smaller copper wires to be employed in the transmission of speech than would otherwise be required. This alone has had a profound influence in making possible the extensive use of the small wire cable. The resulting savings are due not alone to the economy in copper, but to many collateral advantages, such as allowing the use of lighter and fewer poles and of a smaller number of underground ducts.

### Repeaters

Unlike loading, repeaters do not aim to improve the conducting path for the voice currents, but rather to reinforce these currents by introducing new sources of energy at various points along the line. In this way the amount of energy arriving at the distant point may be made substantially the same or even greater than that leaving the starting point.

The repeater has always been an attractive mark for inventors. Efforts to produce one naturally took the form of a mechanical coupling between the vibratory part of a receiver and that of a transmitter. In this way the receiver would, as it were, talk to the transmitter; and the transmitter, as usual, would act as a valve in causing modulations in the stronger current of a local source.

It was easy to make these mechanical repeaters work in one direction. It was more difficult to make them work successfully in both directions. Moreover, the mechanical inertia of their vibratory systems was always a serious drawback, particularly since it acted unequally on vibrations of different frequencies, thus producing distortion.

In spite of these difficulties, Herbert M. Shreeve produced a successful mechanical repeater which was actually used on the transcontinental lines of the American Telephone & Telegraph Co. with moderate success. It probably would have been further improved had not the vacuum tube repeater been produced at about that time. This, being devoid of mechanical inertia, was so vastly better than the mechanical repeater, both in principle and in practice, that it at once removed further incentive to work along the mechanical line. With the vacuum tube repeater practically distortionless, amplification was possible, while with the mechanical repeater it was not.

To show what the repeater means on the New York-San Francisco line, the following quotation from a recent paper[4] by H. H. Nance and O. B. Jacobs is given:

> Without telephone repeaters but with other parts of a long telephone circuit unchanged, the delivery at the receiving end of the amount of power ordinarily obtained would require startlingly large amounts of power at other points in the circuit.
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> For example, in the case of a San Francisco-New York connection, the amount of power ordinarily applied at San Francisco would be required near Harrisburg, Pa. All the power introduced ordinarily at all points in the line would be required at a point near Pittsburgh. Power sufficient to light two 20-c.p. incandescent lamps would be necessary near Chicago, while the power of a five-kw. radio station would be re-

quired near Omaha. The requirements continue to rise rapidly until, near Rawlins, Wyo., a 50,000-kw. generator would have to deliver its entire rated capacity to the circuit; while at San Francisco, something in the order of the estimated *total world production of mechanical and electrical power would be needed.*

Let us suppose, however, that a 50,000-kw. generator delivered its entire output to the circuit at San Francisco, and overlook, for the moment, what would happen to the line if any such amount of energy were applied. The power received at New York would be of the order of 1/500th of a microwatt, *which would have to flow for about 25,000 years in order to* equal the energy required to light a 25-watt lamp for one minute.

**Simultaneous Messages.**

Efforts to send more than one message at a time over a wire are older than the art of telephony. Bell was trying to do this telegraphically before he invented the telephone.

By properly combining two metallic circuit telephone lines, a third or "phantom" circuit is made available, thus permitting three simultaneous conversations over two "physical" lines. Then there are various "simplex" and "composite" systems, wherein the two telephone wires of a line may, in addition to carrying telephone messages in the regular way, also carry one or several simultaneous telegraphic messages. These systems have long been in regular commercial use.

Of later origin, however, are the so-called "carrier current" systems, by which a telephone line, used in all the foregoing ways for transmitting telephone and telegraph messages, may be made to carry as many as six additional telephone messages without interference.

These carrier current systems make use of the fact that vibrations having frequencies above about 20,000 cycles per second are inaudible. Therefore, currents lying within successive bands of frequencies above the audible range may be applied to the telephone line without interfering with its ordinary operations. Each of these successive bands of inaudible frequencies is made to afford a separate "channel" of telephonic communication. This lies at the very threshold of the radio art.

Some idea of the benefits derived from these methods of simultaneous transmission may be gained from the fact that on some of the main open-wire circuits of the transcontinental line as many as 20 two-way communication channels are derived from two pairs of wires. Of these, 6 are telephone and 14 are telegraph channels[5]. Again, on a single conductor submarine cable, extending from Catalina Island to the mainland of California, eight different channels are secured, one an ordinary direct telegraph circuit, one an ordinary telephone circuit, and six carrier current circuits[6].

**Interrelationships.**

Telephone plant is comprised roughly within three general classifications: Subscriber's station equipment, central offices, and lines. In the foregoing, something has been said of the trend of development of each, and of how these developments have necessarily been correlated, in order to produce not only an operative system, but a system properly balanced from the economic standpoint.

In the last analysis, the telephone system includes *personnel* as well as *plant*. Regardless of the extent to which labor-saving machinery may be employed, the human element will always be of great importance in it.

Human effort must always be concerned not only with the workings of the system within itself, but in establishing and maintaining the proper relationships with the public served. And in this connection, let it be kept in mind that the contact between the telephone system and the public it serves is one of peculiar intimacy. The telephone has a personal touch with its patrons that is a different kind from that found in any other public utility service

There is also a peculiar relationship as to both equipment and method, not only with respect to the practice of a single company within itself, but to those of different companies whose lines require to be connected for long-distance service. The underlying reason for this is that the commodity supplied is intercommunication.

Always two persons are involved in a telephone conversation, and frequently two or more operating companies. A bad instrument or a faulty line at one subscriber's station, or an improper operating method on the part of his company, may affect the service of another subscriber, whether a neighbor or one located in the next county or state, or even across the continent.

No such interrelationship exists in like degree in any of the other public utilities. In the case of water, gas or electricity, a consumer merely gets his commodity from a pipe or wire and, except for this, is largely unrelated to and independent of the other consumers.

If each operating organization went its own way without regard to others, there would result a conglomeration of equipment and practices which, while sufficient for service within individual areas, would fall far short of the best possibilities of the industry. In following such a course no company could possibly keep step with the progress of the art. *(Conclusion.)*

[4] Transmission Features of Transcontinental Telephony." Presented at the Pacific Coast convention of the American Institute of Electrical Engineers, Salt Lake City, Utah, September 9, 1926.

[5] Nance and Jacobs, *ibid.*

[6] "Carrier Current on Submarine Cables," by W. H. Hitchcock. Presented at the Pacific Coast convention of the American Institute of Electrical Engineers, Salt Lake City, Utah, September 9, 1926.

# Northeastern Indiana Association Meets

## Annual Spring Meeting of Northeastern Indiana Telephone Association Held at Chamber of Commerce in Fort Wayne on April 3, With 35 Telephone Companies Represented in Attendance—Interesting Addresses Feature Conference

Telephone officials of northeastern Indiana and northwestern Ohio manifested their interest in association affairs by their attendance and enthusiasm shown at the annual spring meeting of the Northeastern Indiana Telephone Association held at the Chamber of Commerce in Fort Wayne, Ind., on Thursday, April 3. More than 200 officials, representing 35 telephone companies, were in attendance.

At a meeting held immediately following the noon luncheon, the following officers were reelected: P. J. Maloney, manager of the Whitley County Telephone Co., president; Martin Umbach, toll superintendent of the Home Telephone & Telegraph Co. at Fort Wayne, secretary-treasurer; and E. G. Knipple, district commercial superintendent of the Indiana Bell Telephone Co. and Harry E. Gray, general plant superintendent and chief engineer of the Home company, members of the executive board.

The forenoon session, starting at 9:45 o'clock, was attended by both men and women. As a special feature, the formal opening of United States-South America radio-telephonic communication by the American Telephone & Telegraph Co. was successfully demonstrated through a hookup with the Fort Wayne station WOWO. A radio set, installed on the stage, brought in clearly the conversation of President Hoover with the presidents of the South American republics, Chile and Uruguay. This unique program proved interesting to all.

Mr. Maloney presided over the morning session and, following the regular business routine, introduced R. C. Rottger, vice-president of the Indiana Bell Telephone Co. Alluding to the transcontinental telephone service demonstration, Mr. Rottger declared that this was to him the greatest marvel in modern scientific achievement.

He expressed the opinion that the South American transcontinental line was a greater achievement than the one to Europe on account of the topographical and climatic difficulties to be overcome in transmitting the human voice through tropical areas and over the vastnesses of the Andes Mountains.

Mr. Rottger selected for his address the subject, "How to Obtain and Retain Good Public Relations." He said in part:

"Every telephone company has its own problems to solve, one of which is how to obtain and retain good public relations. The telephone business differs from all other mercantile and industrial pursuits in that its product is more or less intangible and cannot be measured or weighed or inspected by the customer before buying. Telephone service is what we sell and for which we must receive enough pay for the considerable apparatus and plant required for its production and distribution.

We must keep the good will of the public by rendering the best telephone service. The subscribers will appreciate fair and honest treatment by the company and its employes and will not object to paying an adequate price if convinced that the company is doing all in its power to give the best and most up-to-date service."

Following Mr. Rottger's address, short talks were made by a number of operators relative to the fine spirit of cooperation existing between the operators and the linemen and troublemen, who are always willing to do their best to keep the service going under the most trying circumstances.

At the noon luncheon, Otto Marahrens, general manager and secretary of the Home Telephone & Telegraph Co., who presided, introduced William J. Hosey, mayor of Fort Wayne. Mr. Hosey welcomed the convention in behalf of the city, calling attention to its advantages, both social and material, which are offered to everyone, whether a visitor or a resident. Mr. Hosey was recently voted into office for the fourth time in his career. In a reminiscent manner, the mayor recalled the early struggles of the telephone and the wonderful growth and importance the telephone now commands in modern life. He told of watching the Home Telephone & Telegraph Co. at Fort Wayne advance steadily each year until it now gives a type of service unexcelled anywhere.

Following Mayor Hosey, Dr. William P. Dearing, president of Oakland City College, Oakland City, Ind., was introduced by the chairman. Dr. Dearing gave a very inspiring address entitled, "Serving at Our Best." He spoke of the many reasons and faults of individuals which prevent them from serving at their best at all times.

"We must not slump on the job," Dr. Dearing declared, "but we should exert all our power to serve at our very best and to the benefit of our fellow men at all times. We must do that job because it ought to be done.

"If you cannot see through the thing you are doing you are not going to do your best. If you have a cheap objective, you will render cheap service. A person will not ride in a car, the owner of which does not know how to drive. Get your objective, set it high—then make it a goal."

At the conclusion of the luncheon meeting, the operators met in another part of the building to discuss operating methods and problems. Miss Louise Pohlmeyer, traffic supervisor of the Home Telephone & Telegraph Co., was in charge of this meeting. Several interesting speakers discussed subjects pertaining to their work.

W. H. Beck, secretary of the Indiana Telephone Association, was the first speaker on the afternoon program of the men's session. Mr. Beck's talk concerned mostly the coming annual convention of the state association, which will be held May 6 and 7 at Indianapolis. He invited everyone to be present at this convention. Mr. Beck also gave an account of some of the district meetings which he had attended during the past several months.

Following Mr. Beck, C. A. Cora, general commercial engineer of the Indiana Bell Telephone Co., gave a most interesting talk entitled, "General Remarks to Managers." He discussed the following four subjects in detail: Base rate area, service area, telephone market and miscellaneous services and revenues. Concluding, Mr. Cora said:

"It should be the aim of every telephone man to sell his product, telephone service, to everyone residing in his area. Unless he knows his entire area, he will be unable to keep in proper touch with the ultimate demands of exchanges and with the number of prospective new customers."

At the conclusion of Mr. Cora's talk, the nominating committee, which comprised Lewis E. Gerding, chief accountant of the Home Telephone & Telegraph Co., chairman; Frank Baker, assistant plant engineer of the same company, and W. P. Stantz, superintendent of the LaGrange County Telephone Co., presented its report. The report placed in nomination the present officers. Upon motion, which was duly seconded, the nominations were closed and the nominees unanimously elected.

**Members of Northeastern Indiana Telephone Association Present at Annual Spring Meeting in Fort Wayne on April 3.**

## Pennsylvania Association Plans Interesting Convention.

"Plans for the 1930 convention are progressing in fine shape," the second notice telling of the annual meeting of the Pennsylvania State Telephone & Traffic Association, to be held at the Penn-Harris Hotel, Harrisburg, on May 13, 14 and 15, states.

A series of excellent addresses on timely topics of vital interest to all telephone people will aid in making the program the best the association has ever had.

There will be one session conducted by the engineering committee and an operators' conference in charge of an expert

# Rural Telephone Service Problems

## Improvements and Refinements in Telephone Equipment All Follow Trend of Public's Demand for Improved Service—Rural Service Should Be Improved as Well as Town—Address Given at Annual Convention of Iowa Association

By H. A. White,

*Manager, Kansas City Branch, American Electric Co., Inc.*

I have been asked to give the views of a manufacturer relative to present-day service as gleaned from contact with operating companies scattered over the central part of the United States.

As the industry grows older there are more improvements and refinements in equipment, all following the trend of the telephone public's demand for improved service. There is also a change that has come about in the operation of properties in larger units, which in many respects is still in the experimental state, and I, therefore, will not venture to comment thereon.

Another condition which exists now that changes the viewpoint some is that a great deal of equipment in service has become obsolete for a particular location, due to the public demand or the trend of public feeling, and should be taken out of service.

It can be said without contradiction, I believe, that magneto service is fast becoming out-of-date for town or city service. It, however, is admirably fitted for multi-party farm line service in most parts of the country represented by the Middle West.

The tendency of the American public is to travel, and this is made easy by the use of motor-car transportation. None of us would be satisfied to drive a car even ten years old, yet a great many telephone men expect their subscribers to like the service rendered by equipment 20 or 25 years old, operating on lines as old and which have not been adequately maintained.

The subscribers of the smaller exchanges know what real service is, due to their traveling about and visits to the larger towns. These same subscribers in almost every case are willing to pay a justified rate for the service that they want, or the kind of an instrument that they want; but they will not pay even a lesser rate for what they do not want, even though it would serve their purpose.

Some of the things a subscriber wants would have been looked on only a few years ago as "fads," while today they are not "fads," but standard practice. A hand type telephone, not to say anything about a colored one, would have been shunned as a case of smallpox; but public demand is making it the standard telephone of today, and it will replace all other types in the future.

Common battery service, or automatic service, as the local situation demands, are present-day standards. The public looks upon the magneto or crank type telephone as out of date. This view is not alone held by city or town subscribers, but by your rural subscribers as well. However, it is not always desirable or practicable to abandon the magneto service for farm lines; it is possible to make this service first class.

**"Lead Your Subscribers to a Better Rate," Says Mr. White, "And Do Not Let Them Drive You to Improvements That Should Be Made, Making It Much Harder to Get Proper Returns."**

The operating company can afford to make a substantial investment if a saving in operators' wages or maintenance men's wages can be effected.

Central office equipment of the central battery type will cost more to install than magneto, but telephones in the subscribers' home or place of business cost less. In general, it costs less to operate a common battery plant than a magneto for several reasons: An operator will give a better grade of service to a larger number of subscribers on common battery equipment. There are no dry batteries to furnish. The telephones are less complicated, being without generators.

In many instances rural lines can be made full metallic, common battery. Then your cord circuits can be simpler, it not being necessary to have a cord circuit arranged to handle two kinds of line circuits.

Town service has been improved, and public demand would make it ill-advised to install a new magneto plant, even in the smallest town, now.

Isn't it about time some thought was given to your rural subscribers? Study your city and rural situation and lay out a program whereby you work towards a higher type of service at increased rates. Your subscribers will pay an adequate rate for better and more popular service. The higher rate is based on investment, rather than maintenance costs. Investment can be a fixed charge, while maintenance can put the profit on the wrong side of the ledger.

Another thing that will force metallic lines is power distribution. Grounded line service has served its day, except in very isolated cases. Metallic service of the common battery or automatic type is the present-day type of service demanded. It is quiet, free from disturbing inductions and noises.

You have one of the most substantial business in your city, so why not make it permanent and profitable by a study of your customers' demands? Ask for and collect an adequate rate, after you have created a desire in your subscribers' minds for this better service.

Common battery telephones can be operated on rural lines, and are being operated now. It is possible to operate them on grounded lines, but not advisable. If you do use grounded lines, you have lost one very important thing—the improvement offered by metallic lines; the freedom from crosstalk and induction. To collect a proper rate, a proper service must be given.

You will increase your operator traffic some by making it necessary to do all rural ringing, but the service will be immeasurably better with less interference, and the subscriber surer of getting his call through.

The average rural subscriber does not want, and in fact won't have, what has been tried several times—a lock-out system. He wants to listen-in on the line, and will do it. A common battery telephone can be arranged so he can listen without robbing the line of battery and not signal the operator, except when he wishes to place a call.

The thought I am trying to put over is: Lead your subscribers to a better rate and do not let them drive you to improvements that should be made, making it much harder to get proper returns.

Maybe you have a small unit that could be profitably handled by installing a remote control automatic unit, doing the switching from a larger nearby point and thus saving

operating expense. Instead of putting in a new magneto board, it might be a better investment to install a common battery board with universal cord circuits to handle your rural.

Maybe you have a congested rural development with rural subscribers on short lines which can be made common battery. Only a study of your partciular situation will get you the right answer. No rule of thumb can be laid down that will tell you what to do.

A groceryman might want to motorize his delivery. He would not buy a five-ton truck to deliver eggs; he would get a light delivery motor.

The same idea may be applied to telephone service, in the small unit boards. In many common battery boards the five-ton truck idea has been applied when a small unit board would be sufficient.

This subject of the rural exchange is worthy of your serious consideration and study. Look your field over. Talk it over with the manufacturers of equipment, and put your plant on a modern basis.

# "Ten Per Cent Plus" Meetings

## District Meetings Held in Kansas Between March 25 and April 4 Well Attended and Successful in Every Respect—State Now Organized into Districts—Plans for Future Meetings

In Topeka, Kans., is a road sign showing New York City to be 1,161 miles away. The Kansas Telephone Association, between March 25 and April 4, held nine district meetings in the state of Kansas that required the secretary and his willing assistants to drive a total of 1,319 miles in order to make these meetings possible.

The attendance at all these meetings was very gratifying to the officers and members of the association, in view of the lack of interest in association work in the past on the part of the smaller companies, for it showed a renewed interest and a desire to work together, as even the smallest meeting was larger than district meetings in the past. Whether the meeting was large or small, the interest was the same. The discussion after each talk was free and easy and at times had to be cut off by the chairman in order to allow the program to proceed.

The operators' schools gave the girls information they needed. Their interest was so great that in some districts at 5:30 p. m. they were still talking after the secretary and the supply men had driven away to the next meeting.

The total attendance at the nine district meetings was 442, of which 202 were operators who received training. This is more than six times as many small company men and women than have ever been present at a Kansas annual convention in the past. The ninth district meeting at Pratt on April 4 won the prize for attendance, although the second district ran a close second at Osawatomie. The standing of the districts is as follows:

| | Men. | Operators. |
|---|---|---|
| Ninth District—Pratt | 33 | 60 |
| Second District—Osawatomie | 44 | 36 |
| Third District—Girard | 32 | 30 |
| First District—Effingham | 27 | 16 |
| Sixth District—Mulvane | 20 | 21 |
| Fourth District—Clay Center | 22 | 11 |
| Seventh District—Stockton | 22 | 10 |
| Fifth District—Marion | 22 | 9 |
| Eighth District—Great Bend | 18 | 9 |
| Totals | 240 | 202 |

The state is now organized and each chairman claims that at the next district meeting his district will have from 125 to 150 present. The officers of the association have decided that a prize will be given to district No. 9 at the annual convention to be held May 13, 14 and 15, and kept by it until some other district takes it away during the next series.

In carrying out this series of district meetings the programs were all the same in each district, as the same specially-prepared talks were read and discussed thoroughly. The association is indebted to the United Telephone Co. of Abilene and its experts who made these talks possible.

The traffic department of the Southwestern Bell Telephone Co., under the leadership of H. O. King, compiled and put on the course in the operators' schools, keeping in mind the smaller company viewpoint. S. W. Black, connecting company agent, was of great assistance in making this cooperation possible. The United Telephone Co. aided Mr. King.

C. A. Sweet of Stromberg-Carlson Telephone Mfg. Co., Wm. C. Strehl of Kellogg Switchboard & Supply Co., Fred Paris of the American Electric Co. and H. B. Couch, telephone engineer and accountant of Topeka, were largely responsible for the success of the meetings for the part each took in the programs and the way they led the discussion and made everybody talk.

The result of this series of meetings, Secretary MacKinnon says, is an organized state, ready to work hard to put the telephone companies on a business basis and give the public the best of service; ready to compete one exchange against another, one district against another, and if necessary one state against another in new station contests, improvement contests, and anything else the association starts.

### Plans Progressing for New York Association Convention.

The ninth annual convention of the Up-State Association of New York will be held at the Seneca Hotel, Rochester, May 21, 22 and 23, and arrangements are under way to make the program of interest to everyone engaged in the telephone business from the executives to the line gang, President J. G. Ihmsen says.

Speakers on the program will be the best informed men and women on the subjects discussed, information and advice will be available for the solution of problems.

The District Meeting of the Kansas Telephone Association Held at Pratt on April 4 Won First Prize for Attendance, 93 Being Present.

# Here and There in Telephone Work

### Dog Obeys Commands Given Him Over Telephone.

Mr. and Mrs. Fred Stroehle of Idaho Springs, Colo., have a Boston bulldog which they claim answers the telephone. He is called Cody, named, doubtless, after that world-renowned western character, Colonel William F. Cody, or "Buffalo Bill" as he was better known.

Cody has a penchant for straying away from home. He likes to wander and often takes himself for a ramble. Usually he winds up at the garage of which his master is proprietor, selecting one of the best cars in which to take a comfortable nap.

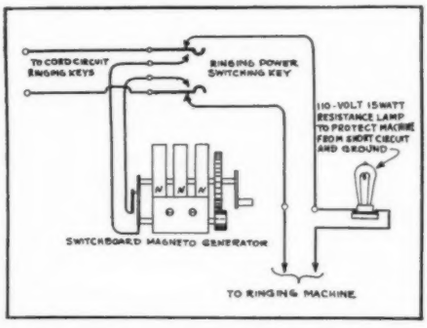

TO CORD CIRCUIT RINGING KEYS
RINGING POWER SWITCHING KEY
110-VOLT 15 WATT RESISTANCE LAMP TO PROTECT MACHINE FROM SHORT CIRCUIT AND GROUND
SWITCHBOARD MAGNETO GENERATOR
TO RINGING MACHINE

Fig. 1. Wiring Diagram Showing Connection for Machine Ringing.

Whenever Mrs. Stroehle misses Cody for a considerable length of time, she calls up the garage. One of the attendants calls the dog from his resting place and then holds the telephone receiver against his ear. As soon as Cody hears his mistress' voice, telling him to come right home, he invariably does so.

### The Magneto Telephone Exchange Repairman; Ringing Power.

By JOHN A. BRACKEN.

Power might be defined as strength in motion. While at rest, strength is but potential—that is, existing in possibility but not in reality. Only when strength moves to the accomplishment of a certain work, is it actually power.

Magneto exchanges serving 200 subscribers or over are generally provided with a machine for the purpose of furnishing ringing power, in addition to the switchboard hand magneto generator. The ringing machine is a special device by means of which a suitable alternating electric current is obtained at the switchboard for the purpose of ringing the bells at the subscribers' stations.

When the current from the ringing machine is connected to the switchboard circuit ringing keys, it enables the operator to signal subscribers by merely depressing a button or moving a lever on the key-shelf. The saving of equipment operations and work on the part of the switchboard operator, due to the provision of a source of constant ringing power, has the effect of more rapidly establishing connections between the calling and called parties.

When machines form a part of the ringing equipment in magneto exchanges, the alternating current ringing supply conductors from the machine to the switchboard and the magneto or hand generator in the board are usually wired to a switchboard key as shown in Fig. 1. The hand generator is used as an emergency, in case the ringing machine fails. By operating the switching key, the operator can connect either source of ringing current to the cord-circuit ringing keys.

Ringing machines are of various types, such as power-driven generators, vibratory pole-changers or interrupters, and frequency converters. Certain types of ringing converters are designed to be operated from 60-cycle alternating current mains.

A pole-changer, or ringing interrupter, is an electro-mechanical device so designed as to change a direct current from a group of dry cells into a suitable alternating ringing current. Fig. 2 shows the theoretical arrangement of a pole-changer.

This device operates on the principle of ordinary vibratory night alarm bell, having contacts so placed on the vibrating arm that direct current terminals are very rapidly reversed in the ringing circuit, thus producing the effect of an alternating current of about 20 cycles per second.

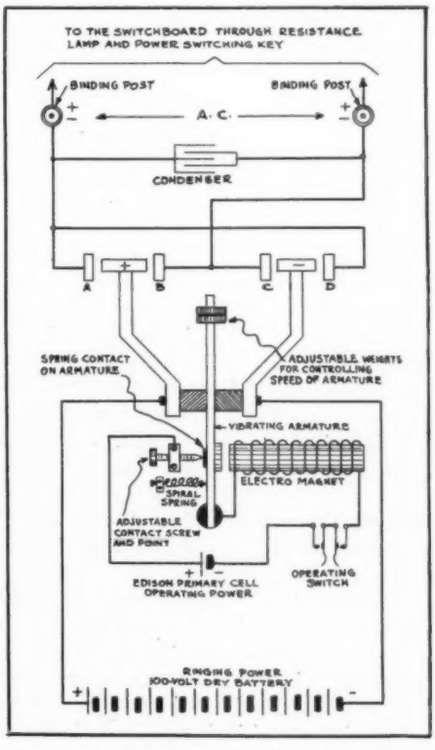



Fig. 2. Simple Pole Changer or Ringing Interrupter Circuit.

Although the vibrating arm of a pole changer may be arranged to operate in either a vertical or horizontal position, its movement is similar to that of a pendulum.

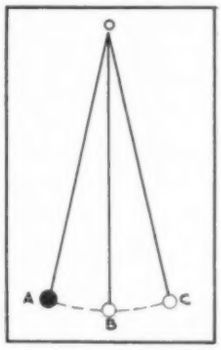



Fig. 3. Vibrating Pole Changer Arm Is Similar to a Pendulum Movement.

A pendulum is a body suspended so as to vibrate freely. A complete vibration is a swing from one side to the other and back again—that is, as shown in Fig. 3, from *A* to *B* to *C* and back to *A* again.

The swing of a pendulum may be classified with reference to: (a) amplitude and is one-half the arc (a curved line or part of a curve forming the segment of a circle) described in a single swing; (b) the period, or time of vibration, which is the time required to make one complete vibration; and (c) the frequency, or number of vibrations per second.

It is important to have a clear idea of the relation between period and frequency. As an illustration of the relation between period and frequency let us suppose that the period (the time of one complete vibration) of a given vibrating arm is 1/20th second. Then it is clear that in one second the arm will make 20 vibrations. That is, its period equals 1/20th second and its frequency equals 20 cycles. Frequency is equal to the reciprocal (mutually interchangeable) of the period, or

$$\text{frequency} = \frac{1}{\text{period}}$$

Since vibrations of the armature of a pole-changer or interrupter are isochronous—that is, performed in equal intervals of time—all that is needed is some mechanical device to keep the armature vibrating between the stationary contact points and thus interrupt or change the polarity of the flow of high-voltage battery current.

In the circuit shown, Fig. 2, the armature is mounted on a pivot screw spring and caused to vibrate by a magnet in series with a single Edison primary cell and switch. A local spring contact on the armature normally rests against a back contact screw point, and is held in this position by the tension of the spiral spring. Battery current, flowing through the electromagnet, causes the armature to be attracted, thus breaking the contact on the local spring, and the armature again re-

turns to its first position. This action is repeated rapidly, thus causing the armature to vibrate.

On the end of the armature farthest from the pivot screw, special contacts marked (+) and (—) are mounted, on which terminates the ringing battery wires. When in action, these spring contacts strike contact points, *A*, *B*, *C*, and *D*, to which are connected the ringing conductors to the switchboard through the resistance lamp and power switching key.

When the armature is pulled over to one side by the electromagnet, positive current from the ringing battery is connected to one ringing conductor at contact point *B*, and negative current to contact point *D*. When the armature is pulled back again by the spiral spring, the ringing battery circuit is reversed to the ringing conductors at contact points *A* and *C*. In this manner and by a proper adjustment of the machine, alternating current is delivered to the switchboard ringing circuit from a direct current battery.

The condenser connected to the alternating current binding posts may be said to have its use in connection with the ringing interrupter or pole-changer as follows: It serves to absorb the momentum of the interrupted direct current and thereby prevents destructive sparking at the contacts, *A*, *B*, *C*, and *D*. The production of a spark at these points is very detrimental, for the reason that it tends to burn off the contact points. The condenser also helps to prevent a sudden breaking of the high-voltage battery current.

## Do You Remember When Horses Gnawed Telephone Poles?

In the April issue of the Michigan Bell, the monthly magazine of employes of the Michigan Bell Telephone Co., a variation of the question, "Do You Remember When?" was presented under the caption, "Progress—Automobiles Can't Chew Telephone Poles." This interesting discussion of a former plant practice was presented:

Can you recall the old-time "cribbing guard" that protected our telephone poles from the ravages of hungry horses? The few poles so protected that remain mutely tell a story of an age when folks coming to town on Saturday night, tied the family nag and conveyance to a convenient telephone pole and went down the street to do the shopping. The horse, left to his own devices, quietly passed away the time by gnawing the pole to which he was tied.

Far-sighted telephone men, foreseeing the eventual destruction of the pole, adopted a means of protection that consisted of winding wire about the pole. But immediately there arose another problem. Small boys, desiring to climb in the world, utilized the wire "cribbing guard" to reach the pole steps, which formerly had been out of their reach.

That led to the adoption of a different method of protection. Steel strips, several inches in width, were nailed up and down the pole, and effectually prevented the equine lunch habit, while offering adventuresome boys no foothold.

"Cribbing guards" have passed out of the picture for two reasons: Automobiles do not gnaw telephone poles, and telephone poles are becoming fewer in number. The latest figures indicate that 67.9 per cent of our exchange lines and 37.4 per cent of our long distance lines are in underground cable, where neither horse nor small boy doth corrupt.

## Wisconsin Company Add-a-Phone Campaign Most Successful.

The April issue of "The Mouthpiece," the monthly publication of the Associated Telephone Utilities Co., contains an interesting article telling about the "Add-a-Phone" campaign recently put on by that company in Wisconsin. There were 1,162 new stations added during the campaign and of these 1,038 were new subscribers. In addition, other types of revenue-producing service were sold, such as P. B. X. trunk lines, extension bells, hand sets or monophones, head sets, desk telephones and various changes in service made which increased the revenue.

The Stratford exchange won the silver trophy by gaining the greatest number of stations, going over its quota 26½ times for a percentage of 2,650 per cent; the Eastman exchange had 1,650 per cent; Marathon, 1,105 per cent, and Whitelaw 1,010 per cent.

Plans for conducting the campaign were made before starting the selling. It was decided that employes make the best sales people, provided the proper incentive is offered. The state was divided into three sections, the eastern, southern and northern, with a captain or supervisor in charge of each. The objective of the campaign was stated to be "the increase in revenue that might be obtained by the sale of equipment or service of any type on a monthly rental basis without introducing a prohibitive expenditure for installation or obtaining that revenue."

To avoid inequalities of one section outnumbering the other in number of employes to work on the campaign, the contest was conducted on a percentage basis computed on a predetermined number of quota points for each district. A quota was also placed on each employe in each exchange. The total quota for the northern district was placed at 1,090, for the southern district 1,050, and 750 for the eastern district.

It was decided that the winning exchange in each district should have an appropriate wall plaque proclaiming them the winners. For individual honors in each district, an award of $25 in gold was to be given, for second highest an award of $10, and $5 in gold to the third highest score in each district.

Two weeks was decided to be the length of the campaign, as it was believed that that would give each employe ample time to complete his canvass.

As a stimulus to arouse the spirits of the contestants, the Altimeter Chart and the Add-a-Phone News were created. The chart was hung in a conspicuous place in exchanges where each employe could see for himself the daily progress of his own exchange. The Add-a-Phone News was published prior to and during the campaign. During the campaign it was published every day.

Prior to the campaign it was used to arouse curiosity, then to create an interest and finally to build a desire to achieve or to do battle for the district within which the contestants lived and to participate in the rewards. During the campaign, its pages were devoted to lauding the leaders and giving cheer to the less fortunate and to giving the daily progress of the campaign with appropriate remarks and comment on the contest that might be of common interest.

The results of the campaign were most successful, the state completing its quota 196.8 per cent.

The outstanding result of the campaign was the addition of 485 rural resident subscribers at a yearly rental of $7,703.76. The total revenue produced directly from the sale of service amounted to $24,080.07.

The cost of the campaign was $1,500, which includes salaries, grand prize, etc. The northern district won the race with a 270.0 per cent completed quota, the eastern district came second and the southern district third, completing it quota 137.9 per cent.

## Vatican City, 500 Population, to Have 800 Telephones.

Vatican City, the Pope's small state of 500 inhabitants soon will have what is probably the greatest proportion of telephones to population in the world. With the installation of a new system there will be 800 numbers, of which 600 will shortly be in use.

Pope Pius's personal telephone will be of massive gold, bearing the Pontifical seal and ornamented with mother-of-pearl. He will be able to telephone without his call passing through the exchange. Special private lines also will be installed for the secretary of state and other dignitaries.

## Prices in the Metal Markets.

New York, April 14: Copper—Quiet. Electrolytic spot and future, 18c. Iron—Quiet. No. 2 f.o.b. eastern Pennsylvania, $18.50@20.00; Buffalo, $16.50@17.00; Alabama, $12.50@14.00. Tin—Easy. Spot and nearby, $36.62; future, $36.87. Lead—Quiet, spot New York, 5.50c; East St. Louis, 5.40c. Zinc—Steady, East St. Louis spot and future, 4.92@95c. Antimony—7.87c. Quick Silver—$116.00.

# Two-Way Television Demonstrated

## Telephone Wires Used in Demonstration of Two-Way Television by American Telephone & Telegraph Co. and Bell Telephone Laboratories on April 9—Brief Sketch of Development of Television Since First Presented in 1927

Two-way television in which the speakers at both ends of a telephone line or a radio circuit see the image of each other as they talk was demonstrated on April 9 by the American Telephone & Telegraph Co. between 195 Broadway and the Bell Telephone Laboratories at 463 West street, New York City.

The engineers pointed out that it is just as easy to let a person in a television booth in San Francisco see a person at the other end of the line in New York as it is to send the images over a short distance, as was the case in this demonstration. The system is applicable to radio, but with less certainty than when wires link the two points. Telephone wires were used in the demonstration.

Special television booths have been developed about the same size as an ordinary telephone booth. Upon entering the booth the person to be "televised" sits in a swivel chair and faces a frame in which he will see the person at the other end of the line to whom he will speak.

The face is illuminated by a mild glow of blue light which is reflected from the face to the photoelectric cells, known as "radio eyes." This causes the current to flow which transmits the image to the distant booth. There is no glare or flood of brilliant light as in early television demonstrations. At first, as one enters the booth, a dim orange light which is too weak to affect the photoelectric cells, is noticed.

**Ordinary Telephone Eliminated.**

The usual telephone is missing. Special television transmitters and receivers are hidden from view. It was necessary to dispense with the ordinary telephone because it would hide part of the speaker's face from the distant observer.

When the speaker turns in the chair and faces the apparatus, he sees on the glass screen the words, "Ikonophone—Watch this space for the television image." Then this sign lifts like a magic curtain and in its place the animated picture appears of the person at the other terminal. The two converse in ordinary tones as over the telephone. The images are about a foot square and are very clear.

The engineers called attention to the fact that the 1930 television image is greatly improved over that shown by the Bell Laboratories in 1927, and is double the size with more clarity and detail. The "radio eyes" are much more sensitive. They create ten times the amount of current for the same amount of light as did those of three years ago. The dazzle of light has been eliminated by the increased sensitivity of the "eyes" and by the blue scanning beam.

The person being "televised" little realizes that his face is being swept 18 times each second by the beam of light that liluminates it. Both parties to the television-telephone conversation see each other with sufficient detail to recognize the facial expressions. It is like an instantaneous motion picture in black and white on a pinkish background, caused by the color of the high-powered, water-cooled neon tube utilized in the receiving set. No part of the system is annoying to the eye.

**Transmitter and Receiver.**

The voices are picked up by a senstive condenser-microphone the same as used in broadcasting and in sound-picture recording. The receiver consists of a small loudspeaker. Both are concealed behind the screen upon which the image appears. The microphone is located a trifle above the head and the loudspeaker about even with the knees of the person in the booth. Both are invisible to the persons using them. The sound-proof booth is acoustically treated to avert echoes.

Those credited as playing major roles in the development of this system are Dr. Herbert E. Ives of the Bell Laboratories research department, Dr. Frank Gray and H. M. Stoller who developed the synchronizing mechanism. The amplifiers have been designed by A. W. Horton and M. W. Baldwin, also of the Bell Laboratories. The engineers were reluctant to make any predictions as to future development.

Walter S. Gifford, president of the A. T. & T. Co., said that this demonstration marked the third step in the progress of television as presented by his company. The first black and white images shown in 1927 were followed by out-of-door television in 1928 and color television in 1929. He said that the two-way television talks and images can be accomplished over any distance where suitable telephone channels, either wire or radio, are available.

**Commercial Possibilities Uncertain.**

"Despite the fact that the research and development work of the past three years," said Mr. Gifford, "has resulted in a great improvement and simplification of the equipment required for television, it is still necessarily complicated and expensive, requiring expert attention and large units of apparatus. These facts arise out of the inherent technical requirements for satisfactory television transmission.

"While substantial progress has been made on the technical side, the future commercial possibilities of television are still uncertain. In line with our long established policy of fully exploring and developing every field which gives promise of possible improvement in extension of electrical communication, we expect to continue our television work."

Dr. Frank B. Jewett, vice-president of the A. T. & T. Co. and president of the Bell Telephone Laboratories, heralded the new step in television as an "interesting but as yet commercially unavailable extension of electrical communication."

**Distance No Obstacle to Television.**

"While this equipment has for convenience been installed only a few miles apart," said Dr. Jewett, "and while wire circuits in ordinary underground telephone cable have been employed for the transmission channels, it might equally well have been installed hundreds or thousands of miles apart. It might employ either wire or radio for the connecting channels, as was shown in the initial demonstration of television by the American Telephone & Telegraph Co. in April, 1927.

"With suitable telephone channels of whatever sort available, the element of distance is not a controlling factor, although in this form of electrical communication as in all others greater distance ordinarily involves somewhat greater complexity and expense for channel facilities.

The terminal apparatus is still inherently complicated and expensive. This complication arises out of the necessity for producing, transmitting and reproducing a large number of distinct images each second if good results are to be obtained. No practical suggestions for eliminating this fundamental requirement have as yet been made and there appears to be nothing promising in our present knowledge of physical science.

Correspondingly, the requirement that what is in effect a very wide band of frequencies be transmitted leaves the transmission channel problem essentially unaltered. The requirement of an extremely wide transmission band, and the further requirement that during the period of transmission the channel or channels must have a high degree of electrical stability and freedom from extraneous interference. make the channel problem both difficult and expensive.

**Wire Transmission Best.**

"Unlike telegraph or telephone transmission, where a limited amount of channel instability or a moderate amount of electrical interference can be present without serious impairment of service, telepho-

tography and particularly television require practically perfect interference-free channels. For these services any marked instability in the channels or any substantial electrical interference registers at once as a serious defect in the received image.

It is for this reason that while radio channels can be used for the transmission of television, they are not in the present state of the art as suitable as wire channels. Wire telephone circuits, particularly if in cable, can be maintained at a high degree of constant transmission efficiency and freedom from extraneous interference. Radio channels on the other hand are subject to the well-known vicissitudes of fading, static and interference, all of which result in a degraded received image.

Although, on account of its present complexity and high cost, no substantial commercial field is yet in sight for television requiring good images, there is still a large amount of technical work which gives promise of decided improvement over the means and methods now available."

## IOWA HOLDS ITS 35TH ANNUAL CONVENTION.

(*Concluded from page* 18.)

the annual banquet, which was followed by an entertainment consisting of professional dancing, musical and vocal numbers. The balance of the evening was spent in dancing which was enjoyed by a large number.

The attendance at the banquet was probably the largest at this annual social gathering, approximately 350 being present and everyone thoroughly enjoyed the evening.

### Open Forum Discussion.

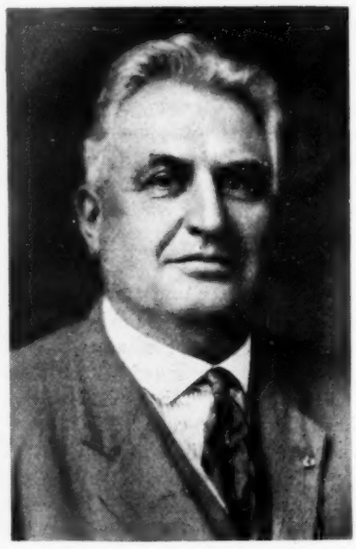
Thursday was given over to open forum and round table discussions. That these are popular was evidenced by the attendance at the morning session, between 75 and 100 being present. J. M. Plaister, of Fort Dodge, conducted the general and plant division meetings. Later, in the absence of J. E. Lynch of Sac City, who was scheduled to preside at the commercial division meeting, Mr. Plaister conducted that part also.

Resolutions reported by P. C. Holdoegel were adopted at the opening of the Thursday morning session. They expressed appreciation and thanks to the various people who contributed towards making the meeting a marked success, and included speakers, exhibitors, hotel, chamber of commerce and officers of the association. Another resolution read:

"Be It Further Resolved that the association makes special mention of the services rendered by Miss Barnes, and our expression of hope that she may soon be recovered from her present illness, and in recovered health renew her activities in the interest of the Independent telephone enterprise."

Appreciation was expressed in another resolution of the services rendered by two distinguished members who died during the past year—D. C. Phillips of Grinnell and J. C. Newland of Sutherland—and the secretary was instructed to write expressions of condolence of the association to the families of each.

The assistance rendered by the engineering extension department of the Iowa State College at Ames in its long continued conduct of operator's schools and conferences was recognized in another resolution.



**L. C. Oberlies, Personnel Director of the Lincoln Telephone & Telegraph Co., Lincoln, Neb., Showed How Corporations Have Become Humanized, Using Many Apt Illustrations in the Course of His Address.**

The forum was then opened with a discussion by Mr. Holdoegel on "Pole Line Locations in Highways, Removals, Etc." He declared that this would be a live subject during the next three years because of the road-building program projected by the state.

Mr. Holdoegel stated that the state code of 1924 provided for a 90-day written notice to move poles. A later section, however, specified 30 days' notice before the public can move poles. He advised that when a company is ordered to move poles, it is better for the company to do it.

There is quite a question, he stated, as to the location of poles on a highway, whether the entire line including the crossarms should be on the highway or overlapping on adjacent property. A case which involved this point is on rehearing before the state supreme court and it is expected that the law relative to pole location will be clarified.

Following Mr. Holdoegel's discussion, the matter of overbuilding of telephone lines by high tension lines was brought up and also trouble with noise on grounded lines from power lines. These two matters were discussed at considerable length, the general feeling being that the railroad commission, which has jurisdiction over the high tension lines, would protect the telephone lines from overbuilding, in most cases. The power companies also as a rule cooperate with the telephone companies in clearing up noises on rural lines caused by the power lines.

Several questions were asked relatives to building construction in small towns, and the location of trouble also came up.

The commercial division meeting brought out the practice of a number of companies relative to collections, rates and other matters. A number of individual problems were put up for discussion.

The open forum and round table discussions at the Iowa annual meeting are proving more popular each year. To this session the Iowa managers bring their individual problems and methods of solving them are suggested that will repay attendance at the convention.

## Kentucky State Telephone Co. Sold to S. R. Morgan Co.

S. R. Morgan & Co., of Chicago, investment bankers and operators of public utilities in the Southwest, has purchased the Kentucky State Telephone Co., with headquarters at Lexington, Ky., it was announced on April 1 at the Little Rock, Ark., office of the Morgan company.

The Kentucky State Telephone Co. operates 24 exchanges in 24 counties in eastern Kentucky, and has approximately 6,300 subscribers. It has toll lines extending into the larger cities and towns of the area served, which has a population of more than 200,000, it was said.

Consideration was $1,500,000, of which $500,000 was payable in cash and the remainder in 6 per cent gold bonds of the Middle South Utilities Co., another Morgan property.

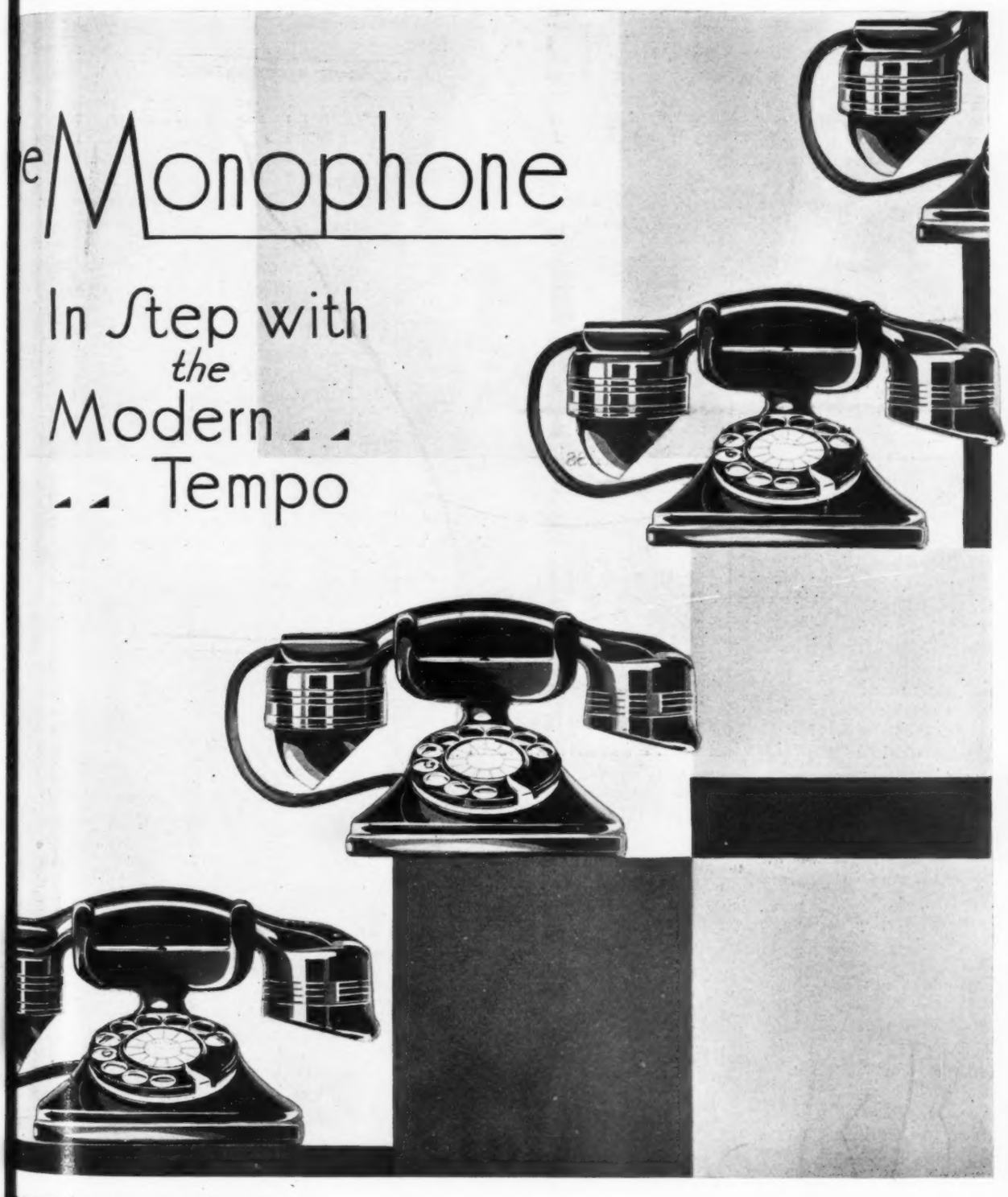
General offices of the Kentucky company will be removed to Chicago, where the general headquarters of S. R. Morgan & Co., are located. Operating headquarters of the Kentucky property will remain at Lexington, Ky, under supervision of L. F. Troxel, newly-elected vice-president of the company.

Mr. Troxel has been an officer in the Morgan utilities for several years, and has been associated with its various enterprises in Texas.

The Morgan company operates electric light, water works, natural gas, ice and telephone properties in Arkansas, Louisiana, Mississippi, Alabama, Georgia, Texas, Oklahoma, Kansas, Tennessee and Kentucky.

## Siemens & Halske, Berlin, Given National Concession in Greece.

The legislature of Greece on March 27 finally approved a national telephone concession for the installation of automatic telephones throughout Greece by the Siemens & Halske Co., of Berlin, Germany.




UTOMATIC
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# Iowa Association's Traffic Conference

## Traffic Matters of Varied Character Discussed at Annual Operators' Conferences During Convention of Iowa Independent Telephone Association at Des Moines—Record Attendance and Interest—Some Papers Read at Sessions

The operators' conference held at Hotel Fort Des Moines April 9 and 10 during the 35th annual convention of the Iowa Independent Telephone Association, drew the largest attendance of any previous year. Owing to the illness of Miss Anne Barnes, the association's traveling chief operator, the conference was in charge of Miss Nelle Roberts of the Iowa Continental Telephone Co., Rockwell City. The program proved very interesting and Miss Roberts was highly complimented.

Great regret was expressed at the inability of Miss Barnes to be present and a number of those in attendance called upon her at the hospital where she was confined. They reported that her condition was very favorable and that she would leave the hospital within a few days.

The program for the conferences on Wednesday included these papers:

"Systematic Method for Training New Operators," by Mrs. Madge Wilson, chief operator, Iowa United Telephone Co., Albia.

"Romance of Work," by Mrs. Mayme Workman, traffic supervisor, Illinois Telephone Association, Springfield, Ill.

"Toll Billing and Public Relations," by Joseph Denkhoff, traffic superintendent, Iowa Telephone & Telegraph Co., Dyersville. A question box and round table discussion occupied the rest of the session.

The afternoon session was opened by an address by P. C. Holdoegel, of Rockwell City, who talked on "What Are We Here For?" The following papers were then presented: "Anticipated Interviews," by Miss Nelle Roberts.

"Collections," by Miss Mae Danels, collector, Creston Mutual Telephone Co., Creston. The session then adjourned to hear the address by L. C. Oberlies.

At the Thursday morning session by Miss Edith Drew, chief operator, Iowa State Telephone Co., Newton, discussed "Follow-Up Training for Experienced Operators." She was followed by Miss Marie Hanny, district traffic supervisor, Northwestern Bell Telephone Co., Des Moines, who spoke on "Importance of Legible Records Written at Toll Center Used by Tributary Offices for Billing Purposes." After an interesting and beneficial discussion, the conference adjourned.

### Importance of the Small Exchange.

By Grace Coan,

*Chief Operator, Crawford County Telephone Co., Denison, Iowa*

The small exchange plays an important part in the world today. Both local and long distance calls are necessary in the small town as well as in the city.

It would seem very sad, indeed, if an important message were carried 2,000 miles, and then would have to be dropped a few miles from its destination just because there was no telephone operator at the desired station.

The telephone operator's job is common only in the sense that it is so universal; aside from that it is uncommon. We might liken the work to a great wheel: The rim

**Miss Nelle Roberts, in the Absence of Miss Anne Barnes of the Iowa Association, Ably Conducted the Traffic Meetings During the Convention Last Week.**

as the united telephone companies' facilities; the spokes as the patrons; and the hub—the middle—as the telephone girls. With only the hub and rim working, there would be no progress; the hub or rim, separately, could not get any place; and the spokes working without the hub or rim would be impossible.

So the wheel must be complete, unified in thought, plan, and execution, if the telephone operators, in both large and small offices, are to let the work talk satisfactorily. The service furnished by the men and women in the small exchanges is just as important as that rendered in the larger offices, because together, they are serving one public.

The question has been asked: What does the telephone mean to the farmer? This question should not be answered thoughtlessly. It may be answered by the following instances: A life saved in time of emergency; a home saved from destruction by fire; tiresome and time-saving trips prevented, when time means money; and the dreary lonesomeness of the farm home banished.

It seems as though the morale and responsibility of telephone employes are strengthened as they become impressed with the idea that telephone service must be uninterrupted and the line must be kept open, regardless of floods, snowstorms, or unforeseen calamities. We have read stories of courageous operators, who stayed at the switchboard in the face of an approaching cyclone, a rising flood, or ravaging fire, and warned subscribers.

In the smaller exchanges, the operator is not only the toll operator; she is also the local operator. In some of the offices she is required to take care of the collections. She must pass all the toll calls that originate at her station, to the toll center operator. She does not build a circuit, but her work is a very important factor in efficient long distance service. She has the important duty of starting the toll call on its way and passing all the information to the toll center operator that is necessary to complete the call.

On an incoming call to her office, the transcontinental service may be perfect, the transmission satisfactory, the call completed in record time; but if the tributary operator has not persevered and successfully aided in the location of the called party, all former efforts will be wasted and the call lost.

How many ever stop to think that the CLR method of operating, which has proved so popular and speeded the toll service, originated in the small exchange —Altoona, Iowa? And, now, I understand this method has been further perfected by a very recent revision of the CLR, known as CH method.

Another important event that happened in a small exchange is that the first man in the world to pay for a telephone was James Emery, Jr., who lived in Charlestown, Mass., a tributary of Boston. About May 15, 1877, he had a telephone put at each end of a line connecting his house with his brother's home across the street. On May 30 of the same year, he paid the sum of $20, which was the first money ever paid for a telephone.

Statistics show that the people of the United States make about six times more use of their telephone systems than the Germans. There is no doubt that this universal use of telephone exchanges contributes greatly to our country's prosperity.

Adequate and efficient communications are indispensable aids to the industries of any country. It has been said that the telephone has played the biggest part in making the world small.

It would be a good idea for telephone people to remind their friends who are planning vacations, that there is one comfort which does not need to be packed but will be on hand wherever they may be—telephone service. A word now and then with home folks is one of the pleasures they may have while on their vacation.

The telephone is really doing a great deal in developing tourist traffic. Many business men would not take vacations if they could not keep in touch with their business each day. It does not make any difference whether the tourist is on the highway, or at some lake resort, or down on the farm, he can rely upon the telephone to make his outing complete.

People in the small towns may be satisfied to trade in the home-town's general store which carries a limited variety of stock; but they want the best of telephone service, both local and long distance. Therefore, the door of telephone service must be kept open everywhere.

"There once was a man who owned a
store,
Filled with goods from the roof to the
floor.
His prices were low,
But his goods wouldn't go,
'Cause the place didn't have any door."

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## The Romance of Work.

By Mrs. Mayme Workman,
*Traffic Supervisor, Illinois Telephone Association, Springfield, Ill.*

When we hear the word "Romance," we usually think of it as being associated with love. We picture soft lights, beautiful flowers, entrancing music and moonlight. But in giving it more serious thought we soon realize there is another romance in life equally as thrilling. It is "Romance of Work."

What is Romance? It is "Adventure," "Something New," "Imagination." These three things are found in every line of work.

If we work with our hands or our heads, we all have the same identical yearnings. Among these is the desire to amount to something, to do work that is worthwhile, and to feel a sense of importance. These yearnings are as common to the humblest worker as to the president of the largest corporation.

We do not work for wages alone. The desire for self-expression is not confined to the graduates of art schools. Teachers, clerks, managers, maids or telephone operators, we are all victims of the same itch. We like to feel we are doing something worthwhile in life, and doing that something well. Few of us properly appreciate how deep is the desire to do worthwhile work.

What could be more romantic than the work of a telephone operator? We have said that romance is adventure, something new, imagination. Is it not true that we

**"Look for Romance in Your Work," Says Mrs. Workman, "And I Am Sure You Will Never Find It Dull or Uninteresting."**

find these three things in our work every day?

Would you not call it an adventure to let your voice travel for miles and miles all over the United States, yes, even across the ocean? Do you ever stop to think of all the romantic things that transpire over the telephone, over the very connections you have established? Are you not thrilled at the thought of all the romantic things you are helping to make possible by the work of your busy hands?

They call us "Weavers of Speech," "Silent Workers"—and we could also be called "Dispensers of Happiness," for how many people are made happy by a telephone call!

A little old lady in California had a son in New York who was very devoted to her. He called his mother from New York every week and she always looked forward to his weekly call. It so happened that the son was called to London, England, on business and for a while his mother missed her weekly telephone call. Then one day she received a letter from her son saying that on that very day he would call her from London.

When the call came through she told him how much she had missed his weekly call, and the son said: "From now on, Mother, I will call you every week while I am in London." Don't you think this little mother was the happiest woman in California that day? To a mother's ear, there is no music half as sweet as the sound of her child's voice. And is it not true that the operators who established this connection were "Dispensers of Happiness"?

We also said romance is "Something New." This is especially true of our work. Every call we answer is different. That is why our work is so fascinating. One call may be a housewife calling the butcher, ordering her meat for dinner. The next call you answer may mean the closing of an important business deal. It may even mean "A Wedding," for in these advanced days, love cares nothing for distance.

Can you imagine getting married over the telephone? That would be romance personified. It is novel but not new. Just recently, a girl in Waco, Texas, was married to a man in Cleveland, Ohio, over the long distance telephone. Witnesses listened-in on extension telephones. A justice of the peace in Waco read the marriage service. Romance? Plenty—and think of all the rice their friends saved.

Our last definition is "Imagination." To me this is the most romantic of the three. We begin using our imagination early in life. We imagine we can see "fairies," "goblins," the "sandman" and all sorts of things in our play.

Then, too, some of our most wonderful inventions came about through someone's imagination. One invention most of us would be interested in is the "Marcel Wave." A man was admiring his wife's hair. It was very beautiful. He imagined how wonderful it would be if all women could have hair as beautiful. The result of his imagination was the invention of the marcel wave.

We use our imagination every day in some way or other. When we know we are going to meet someone, the first thought we have is, "I wonder what he (or she) will look like?" Will he be tall or short, light or dark, amiable or surly? And we draw a mental picture of the stranger. And when we meet him he is usually entirely different from the picture we have drawn.

The girls in the various offices I visit often tell me what they have pictured me to be, and it is interesting to hear the opinion they have formed of a traffic supervisor.

One office I visited recently was that of a company which had been operating for over 20 years, but never had anyone come into it to do supervisory work. These girls did not tell me what they had expected me to be like but from a remark made by one of the girls when I left, I can imagine what they had expected. She said: "You know, Mrs. Workman, you are not nearly as bad as we thought you would be."

I find an abundance of romance in my work. There is one little story I would like to tell—about two night operators working in a small-town exchange. The two towns were just a short distance apart and the two operators had worked in these offices for over 20 years. They talked to

each other over the telephone but had never met face to face. I was in one of these towns the first of the year. The general manager arranged a meeting one evening, and these two operators attended.

They were dear old gray-haired ladies, and I wish you could have seen the happy meeting between these two people who had known each other for years, but who had never seen each other. They laughed and hugged each other and almost cried, they were so happy, and I had to do a little blinking myself.

Our work is just like life; we get out of it just what we put into it. Look for the romance in your work, and I am sure you will never find it dull or uninteresting.

### Leviathan Passengers May Talk to Cuba, Canada and Mexico.

When the Leviathan sailed from New York harbor last Saturday morning, April 12, its passengers had direct telephone service not only with all points in this country but also with most of the cities of Cuba, Canada and Mexico.

This is an extension of the ship-to-shore telephone service to United States telephones inaugurated by the American Telephone & Telegraph Co. the last time the Leviathan sailed from New York. Service between the vessel and North American points will be available for 24 hours—complete day and night service.

During the time the Leviathan has been out of service undergoing alterations, Bell system engineers have been overhauling the vessel's telephone equipment with a view to lengthening the range at which conversations may be held with shore telephones.

On the Leviathan's recent run to Boston and also on its return trip, extensive talking tests were made with cities in various parts of the United States. As a result, the engineers express the hope that on this latest voyage the effective talking range, heretofore generally limited to 2,000 miles, will be definitely extended.

On the Leviathan's previous round trip, a total of 175 calls were handled. The majority were received on the return voyage.

# What the Commissions Are Doing

## Up-to-the-Minute News Regarding the Activities of State and Interstate Commissions, Courts and City Councils in Matters Concerning Telephone Companies—Summary of Commission Orders and Schedule of Telephone Hearings

### Hearings in New York State-wide Case Hearing End.

After two weeks of technical testimony in connection with New York City's phase of the attack against increased telephone rates, the hearings before the New York Public Service Commission in New York City concluded on April 12 with a brisk discussion of a "coincidence" in the company's welfare relations with its employes. The company's practice of dispensing tea and coffee to the telephone operators, according to the discussion, was discontinued when wage increases were granted.

R. H. Boggs, general traffic manager of the Manhattan area of the New York Telephone Co., took the stand to describe a study made of wages and working conditions by a committee of which he was the head. He first told of how the hours for the night operators had been changed to promote efficiency. The starting point was shifted from 9:30 to 11 o'clock because the turnover of the night forces as a result of objections to the break in the evening had produced "relative inefficiency," Mr. Boggs testified.

Mr. Boggs testified that $95,000 of the total rise in wages of $518,000 had been paid to night operators. The tea and coffee served free of charge to the operators before March, 1928, when the raise referred to was effective, he said, cost the company $225,000 a year.

It was brought out by Thomas F. Fennell, Special Deputy Attorney General, that an increase of $1,344,000 had been granted employes by the company on February 16 last. It was explained by company officials after the hearing that the annual rate of the increase would amount to $1,800,000.

A financial statement presented by B. F. Young, assistant general auditor, showing a net amount of $13,673,151.36 due the company on December 31 last for services rendered after giving effect to all prepayments and other payments by subscribers—an exhibit previously rejected by the commission—was received in evidence on April 12 when presented in another form. The statement was offered to refute the contention of Corporation Counsel G. W. Hilly that the company collected large sums from subscribers in advance and before services were rendered, and, therefore, did not need a large depreciation reserve for working capital.

In answer to an inquiry on April 9 by Commissioner George R. Van Namee as to when the reports showing the company's experience during February and March under the new rates would be available, Edward L. Blackman, attorney for the company, informed the commission that the reports would be completed and offered in evidence about this week, when the hearings were to be shifted to Albany.

Mr. Blackman explained after the hearing that the reports would be offered by the company to "sustain the company's estimates and the testimony in the case which so far indicates that the company's return under the new rates will fall below the 7 per cent return allowed by the federal court by about $4,000,000."

Declaring that the proposed new rates of the New York Telephone Co. were "disproportionate" in arrangement, Dr. John Bauer, expert witness for the Utility Consumers' League, told the commission on April 10 that the rate schedule was "grossly discriminatory" against the small business subscriber who makes less than 75 calls a month.

Dr. Bauer confined his testimony to the proposed increased rates rather than to those now temporarily in effect. From a study of the proposed schedule, he said, he had found the rates placed the increase too heavily on the first block of calls; that is, the first 75 calls. To the small business user he estimated the increase was 26.3 per cent over the old rate.

"If justified at all," he declared, "the increase should be made on a cost basis that is definite. But the costs have not been brought out, and when the large percentage of the company's customers fall into the first block, I think the increase is highly discriminatory."

"But the value of the telephone is based on the use made of it, isn't it?" Mr. Blackman asked:

"Yes, but the rates are not based on the value of service," Dr. Bauer replied. "They are based on the cost of service. You can't measure the value of service but you can measure the cost."

Mr. Blackman asked the witness to enumerate the elements of cost that go into rate-making in the first block and Dr. Bauer held that there should be an allocation of all operating costs, taxes, and a fair return that properly belong to the service in each group without discrimination against the first or any other block.

The hearings were to be resumed in Albany on Tuesday of this week and the commission expected to conclude them by the end of the week.

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### Illinois Commission Approves Sale of Telephone Company.

The Illinois Commerce Commission recently granted permission to the Illinois Allied Telephone Co. to take over the property of the Bureau County Independent Telephone Co., which for 40 years has served the territory covered by the 11 exchanges at Princeton, Spring Valley, Ladd,

# "P&H" BUTT-TREATMENT

*—a leading factor in the outstanding success of*

# "P & H PROCESS" POLES

Deeper penetration of preservative, more uniform penetration, more complete saturation and greater amount of free oil in the groundline area . . . these results, so important in assuring longest pole life, are produced by the "P & H Process". Two patented features are employed—a distinctive type of power driven perforating machine and the exclusive P & H method of perforating the pole under a spray of water.

"P & H Process" Poles are guaranteed, in writing, to show a full sapwood penetration to a depth of one-half inch throughout the ground-line area. This is only one of the reasons why P & H Poles are

*"Still in the Lead"*

FAST SHIPPING SERVICE on all cedar pole requirements—Northern White Cedar or Western Red Cedar.

***Predetermined results through laboratory control of "P&H" operations***

## PAGE AND HILL CO.

**MINNEAPOLIS, MINN.**

New York, N. Y., 50 Church St.
Boston, Mass., 733 Public Service Bldg.
Dayton, Ohio, 854 Reibold Bldg.
Chicago, Ill., 19 So. La Salle St.
Kansas City, Mo., 455 Dwight Bldg.
Omaha, Neb., 711 Electric Bldg.

LaMoille, Tiskilwa, Ohio, Sheffield, Dover, Wyanet, Manlius and Walnut.

Under the provisions of the commission's order, the purchasing company will transfer to the Bureau County company 3,000 shares of preferred stock of no par value, 20,000 shares of common stock of no par value, and $500,000 aggregate amount of first mortgage bonds.

Through a deal completed on January 1, the stock of the Bureau County Independent Telephone Co. was sold to a syndicate, headed by Harry B. Crandell, of Springfield, who paid $600,000 for the property.

## Suit Filed in Court Protesting Company's Increased Rates.

Suit has been filed in the Jay circuit court by the city of Portland, Ind., against the Home Telephone Co. to vacate and enjoin the enforcement of telephone rates as allowed by the Indiana Public Service Commission.

The telephone company was granted permission to raise the rates on city telephones from 50 cents to $1.00 per month, effective as of April 1. The city council decided to fight the increase by appealing directly to the circuit court, instead of applying for a temporary injunction, which would have necessitated the city to furnish bond to care for the damages that might accrue during the period of the injunction.

April 21 is set as the return date.

## Judgment Enjoining Discontinuance of Service Reversed.

The Supreme Court of Kansas, in a decision rendered February 8, 1930, reversed a judgment enjoining the discontinuance of service by the American Telephone Co. for non-payment of disputed bill of the Board of Commissioners of Pottawatomie county, Kans.

The board of commissioners sought to enjoin the American company from discontinuing telephone service rendered to the county offices in the courthouse at Westmoreland. Judgment was rendered in favor of the board of commissioners enjoining the American company from discontinuing that service, but rendering judgment in favor of the company in the sum of $413.09 for telephone service that had theretofore been rendered. The American Telephone Co. appealed.

Findings of fact were made by the court as follows:

For a period of about five years immediately preceding October, 1927, the plaintiff paid the defendant, the American Telephone Co. and its predecessors, the rents which were charged to the county for the service rendered in the county offices, but the court further found:

That in September, 1927, there was an oral contract made between the county commissioners and Mr. Carlson, manager of telephone company, for lesser rent than that charged prior to October, 1927, which rent the court found was arranged at the suggestion of Commissioner Dalton of the Kansas Public Service Commission.

The court further found that from September, 1927, up to the present time, telephone bills had been presented monthly by the telephone company to the county for the regular telephone rental which was charged and paid prior to October, 1927, but that the county failed to pay the bills so rendered since September, 1927, but the county has each month during the time from October, 1927, up to the present, issued warrants to the telephone company for the amount of the telephone rental suggested by Commissioner Dalton and the telephone company has not accepted any of the warrants, but returned all of them.

The court further found that the telephone company should recover on its cross petition herein and have judgment for an amount equal to the amount of warrants issued by the county to the telephone company since September, 1927, to-wit: $413.09.

The rates approved in July, 1920, were the legal rates for the service therein named the court stated. If the telephones used by the county were not on individual lines, they were on party lines. There were no rates fixed by the schedule for party line service. The company had charged and received $2.75 for each telephone furnished. The company thereby fixed the rate for the service rendered. That rate then became the legal rate until changed in the manner prescribed by law.

If the telephones furnished to the county were on individual lines, the court stated, the rates charged by the telephone company conformed to the schedule on file; that is, $2.50 for telephones and 25 cents for each desk set. If that rate charged was not satisfactory to the county, the place to get a proper rate fixed was the rate-regulating body then existing.

An individual member of the rate-regulating body had no authority to establish or change the rate the court said. The rate fixed and charged by the telephone company and paid by the county must be continued to be paid until a different rate is established by the proper rate-regulating body.

The judgment was therefore reversed, and the trial court was directed to render judgment in accordance with this opinion.

## "Telephony" Helps Exchange Managers.

Earl F. Stice, general manager of the National Trail Telephone Co., with headquarters at Altamont, Ill., in a letter says:

"Enclosed you will find my check covering another year's subscription to TELEPHONY. I find that it would be hard to continue in business without the timely articles that are published in your journal.

Sam Hand, who sold the Comanche (Okla.) exchange and is now running the Beggs Telephone Co., at Beggs, Okla., in advising TELEPHONY of his change of address, says:

"I could not run a telephone system without TELEPHONY, for it is an up to date information guide for telephone men. I want you to know that I appreciate TELEPHONY very much."

## New York Legislature Passes Utility Bills; Governor to Veto.

The New York legislature, which has just adjourned, passed the various public utility bills introduced as a result of the investigation and report of the Knight legislative commission.

On Friday, April 18, Governor Roosevelt was to hold a hearing on all of the public service commission bills. A request for the hearing was made by Senator Knight, Republican leader of the upper house and chairman of the commission which drafted the bills. The governor is expected to veto several of the more important of these measures.

Regulation of public utility corporations, Governor Roosevelt clearly indicated in an address last week, will be one of the chief issues in the state campaign this autumn. He will lay the foundation for an appeal to the voters on that issue by vetoing the more important of the public service law amendments introduced on behalf of the Knight Commission.

Discussing the accomplishments of the Knight commission, which made a survey of the public service commission law, the governor said:

"The legislature has failed wholly to go to the root of the grave public utility situation. A series of emasculated bills still leaves this as one of the burning questions before the state. The principal bills, when introduced, were futile. After open pressure by the utility corporations, they were made mere paper."

## Patrons Approve Rebuilding Plans Based Upon Higher Rates.

Application has been filed by the Monroe Independent Telephone Co., one of the Continental group, with the Nebraska State Railway Commission, asking for authority to increase rates at its Newman Grove exchange at such a date in the future as it completes the work of reconstruction it has begun. This will result in the city service being changed from magneto to automatic, and the rural patrons served by machine switching, or semi-automatic equipment. The company has more than 600 subscribers at this exchange, and says that a demand exists for a higher grade of service than is now being supplied.

A recent inventory and appraisal of the property on the reproduction new basis, less depreciation, showed an investment at

★

# The Gracious Home Reflects the Ease with which it is Managed

*Telephones in important parts of the house simplify the direction of the domestic establishment . . . yet from them you can call other homes, other cities, other countries.*

* * *

THE HOUSE that is well managed with a minimum of effort is pleasant to live in, or to visit. And telephone convenience within the home plays a large part in this scheme of things. It enables women to give all of their household directions for the day within a few minutes' time. To make sure, with no unnecessary bother, that domestic affairs are progressing smoothly. And to keep fresh their energies for the varied activities of their interesting lives.

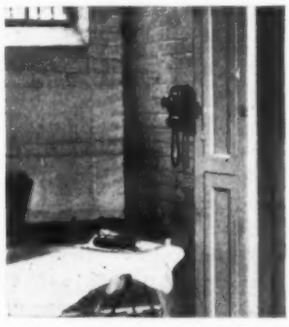
This household administration is conducted over the regular Bell Telephones . . . the same instruments with which you call friends across the street, or in other cities, or even in other lands.

At moderate cost you can have telephone service in all parts of your home. Even in smaller houses, enough telephones add enormously to the efficiency of household affairs . . . to your ease in calling friends, or in receiving service from the outside.

Your local Bell Company will be glad to help plan the arrangements which will give you the greatest satisfaction. Just call the Business Office today.

*Conversations with the cook or maid can be so conveniently carried on by telephone from your bedroom or your living-room. The various details of the day's routine can be arranged in no time at all . . . meals planned, orders given . . . and without so much as one unnecessary step. And all this over your regular Bell Telephones, which you use to call friends across the street, or across the continent.*

*Calls to the butler's pantry . . . before luncheon . . . while you are dressing for dinner . . . assure the smooth functioning of your household, while they save you time, effort and trouble.*



*Telephones located in all parts of your home . . . the laundry . . . the maid's room . . . the garage . . . play their important part in the ease and efficiency of modern housekeeping.*

*The convenience of complete telephone arrangements in simplifying the management of a home is emphasized in this advertisement, which appears this month in a group of magazines of general circulation*

the present time of $86,262. The company has purchased a centrally-located building formerly owned by the Farmers State Bank, now defunct, and plans to spend a total of $50,293 in making the change to the new equipment. With the salvage deducted, the investment, when the reconstruction has been completed, will exceed $123,630.39.

The revenues for 1929 were $12,564 and expenses $9,875, leaving a net of $2,689. Under the proposed schedule it is estimated that the revenues will be increased materially. A part of this will be represented by service with Albion, which it asks be eliminated as free, as at present, and placed on a toll basis.

There will be a saving of $873 in operating expenses, but the rates will not then yield a return that is adequate, although the company is willing to accept them. It is estimated that net returns will be slightly in excess of $5,000, which will mean a yield of 4.09 per cent.

The new rates asked for are: Business, individual, $4.00 per month; business, two-party, $3.50; residence, individual, $2.50; residence, two-party, $2.00. The rural rate, with the number on each line restricted to ten, will be $2.00 per month. The rural lines are now overloaded in most instances.

Newman Grove is the home town of Railway Commissioner Randall, and the commission plan of taking the patrons into the confidence of the company with respect to new rates was followed. The result was that 88 per cent of the business subscribers, 85 per cent of the town residence patrons and 90 per cent of the farmer subscribers, signed consent petitions, contingent upon the carrying out of the company plans.

## Grounded Line Service Being Replaced by Metallic Service.

Permission has been given the Lincoln Telephone & Telegraph Co., Lincoln, Neb., to convert the rural circuits on its Carleton exchange from grounded magneto to metallic magneto. At the present time both types are offered, one at $1.25 and the other at $1.75 a month. The grounded service is unsatisfactory. The commission, having found that the company has no intention of forcing upon farm-line subscribers, where they do not desire it, the higher type service at a higher rate, granted the request on the condition that the company shall not make the change asked for until it has secured the consent of two-thirds of the patrons of each line.

The commission says that where a considerable preponderance of subscribers is willing to pay for better service, the reluctance of a few to pay for it should not stand in the way of the majority getting it. The permission was granted without a hearing, but subject to complaint.

The Lincoln company was permitted to cancel the grounded rate for rural service at its Saronville exchange and to substitute the $1.75 metallic rate for all rural subscribers. This permission had been previously granted, conditioned upon the signing by lines of two-thirds of the patrons on each, but after this had been done, some of the patrons who didn't want to pay the increased rate objected, and a hearing was held. The commission says that the testimony very clearly showed that the rural service was greatly interfered with by inductive interference from power lines, and that as a matter of good service the metallic type service should be given.

There remained for it, therefore, only the question of whether the proposed rate is adequate. The books show an original investment of $14,240, giving effect to the investment necessary to give metallic service, while the new rates will give a net earning of but $100 a year on the property. This may be increased since abnormal maintenance was necessary the past year to give service.

The protestants questioned the allowance of 6 per cent of the book cost for plant retired from service, but the commission says that studies in a large number of cases have shown that not less than 5.5 per cent is necessary, and as the books are kept in compliance with its rules there can be no question of their accuracy.

## Application Made to Commission to Increase Rates.

The Union Telephone Co., which is one of five telephone corporations operated by E. C. Hunt in northeastern Nebraska, has asked the state railway commission for authority to increase rates at its Carroll exchange from $2.25 a month to $3.25 net for individual business; individual residence from $1.50 to $1.85; party residence from $1.25 to $1.60 and farm from $1.25 to $1.75.

Mr. Hunt says that the present revenues are inadequate and that it is necessary at the present time to improve the service, which is impossible unless revenues are increased. The exchange serves 118 stations of its own, besides switching several hundred farm telephones. Mr. Hunt says that the yearly revenues under the new rates will be $5,275, and the net return $502, which is less than he is entitled to under the law.

## Ohio Commission Fixes Valuation of Ohio Central Properties.

Members of the Ohio Public Utilities Commission have arrived at a tentative valuation of the Ohio Central Telephone Corp., consisting of exchanges at Morrow, Mason and Waynesville, Ohio. The value, if unprotested for 30 days will serve as the basis for rate determination.

The present value of the plant at Morrow is fixed at $27,951.90 by an inventory and appraisal of the commission's engineers; the company's valution is $52,504. The plant at Mason is valued at $25,405 by commission engineers and $48,243 by the company; and the plant at Waynesville is valued at $27,432 by commission engineers and $49,359 by the company.

## New Hampshire Commission to Make Survey of Utility Rates.

The New Hampshire Public Service Commission is to make a survey of utility rates in that state. Samuel Mildram, a Boston engineer, will have charge of the study.

Chairman Mayland Morse of the commission said that Mr. Mildram will go into the whole electric, gas and railroad rate situations and also the telephone and telegraph rates. The communities have complained that electric rates were too high.

## Ohio Bell Suggests Book Cost as Basis for Valuation.

The Ohio Bell Telephone Co. on April 10 filed a brief with the Ohio Public Utilities Commission asking that the actual book cost of its property be substituted for reproduction cost in determining a fair valuation on which to base state-wide rates.

As the case now stands the commission is attempting to determine a fair valuation of the telephone company's properties throughout the state, and when that is fixed it will turn its attention to the problem of establishing fair rates.

The case has been pending before the commission since October 14, 1924, when a number of local rate cases previously filed were consolidated.

In the original action the taking of testimony was completed early in 1925 and briefs were filed both by the state and the company; but on July 11, 1927, the commission ordered the case reopened over the objection of the Ohio Bell's attorneys.

So far the case has brought into the record 12,500 pages of testimony and a pile of exhibits 7½ feet high. Hearings have consumed 174 days.

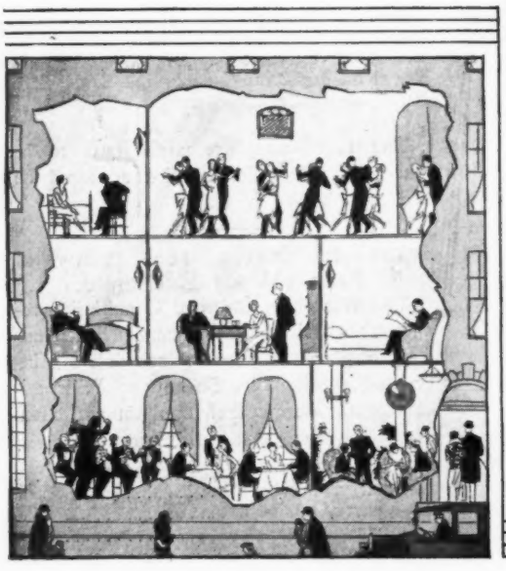
Reproduction cost of the properties new, as of June 30, 1925, was fixed by two company experts. G. B. Williams estimated a valuation of $128,315,758 and W. F. Sloan estimated the reproduction cost at $127,356,000.

W. J. Hagenah, expert retained by the state, figured a reproduction valuation of $113,040,000 but Attorney General E. C. Turner believed this estimate was too high and rejected it. The state then employed H. R. Allensworth, who arrived at a valuation of $104,562,146. This did not account for depreciation.

F. R. McBerty of Galion, president of the North Electric Co., was next employed by the commission and he shaved $6,000,000 off Mr. Allensworth's figures.

It is expected that the special counsel for the commission, T. J. Herbert and A. M. Calland, will seek to peel the valu-

# BUILT-IN-MUSIC



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These manhole forms are very quickly set up in the excavation or removed from the finished manhole. The patented method by which the various sections are joined makes the work of installation in or removal from the excavation fast, simple, and easy. No skilled labor is necessary. A man with a hammer does the job.

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ation down to about $85,000,000 in their brief. The prospect is that the final estimate will range somewhere between that figure and $145,000,000.

In its brief the Ohio Bell company suggested that reproduction costs be dropped and that actual book cost of the properties be adopted as the "practical solution" of the problem.

Reasons advanced for this argument by Karl E. Burr, general counsel for the Ohio Bell company, were: That such a basis would be a short-cut through a maze of testimony; that it would be a basis easily understandable; that it would be eminently fair to the public, and would be a basis the company would accept to dispose of the case.

The actual book cost offered by the company as of December 31, 1929, is $164,509,940.

"Let the commission find actual book cost as fair value, and it will have some—although not legally adequate—weight to the present value," the company's brief said.

## Bell Company Acquires Three Companies in Virginia.

The Interstate Commerce Commission recently authorized the Chesapeake & Potomac Telephone Co. to take over the properties of the Dover Telephone Co., Manakin, Va., the Hanover Telephone Co., Ellerson, Va., and the Midlothian Telephone Co., Midlothian and Provost, Va.

The Dover company serves 52 subscriber stations, the Hanover company serves 91 subscribers and the Midlothian company serves 77 subscribers at Midlothian and 11 at Provost.

On November 19, 1929, the Chesapeake & Potomac company contracted to purchase the physical properties of the Dover company, free from all liens and encumbrances, for $4,000. An appraisal made by one of the Bell company engineers, as of December 30, 1929, found the reproduction cost new of the properties to be $11,703, and less depreciation, $5,907. In 1929, operating revenues of the Dover company were $1,613.06, and operating expenses, taxes and interest totaled $1,636.81.

By a contract made November 13, 1929, the Chesapeake company contracted to purchase all the physical properties of the Hanover company, free from all liens and encumbrances, for $8,641.45. An appraisal made by one of the applicant's engineers found the reproduction cost new of the properties to be $9,566, and less depreciation, $5,708. From February 1 to December 31, 1929, operating revenues of the Hanover company were $2,525.32, and operating expenses, including an item of $22.75 for interest, were $2,019.28.

On July 15, 1929, the Chesapeake company entered into a contract to acquire all the physical properties of the Midlothian company free from all liens and encumbrances, for $6,000. The properties were appraised and their reproduction cost new found to be $20,639, and less depreciation, $8,498. In 1929 operating revenues of the Midlothian company were $2,245.49 and operating expenses, taxes, and interest amounted to $2,135.63.

It appeared that the transfer of the properties would result in a better local service, and that the toll service would also be improved through the rehabilitation of the terminal plants, the commission found, and therefore authorized the transfer.

## Net Monthly Rate Increases Authorized by Wisconsin

Under date of March 28, 1930, the Wisconsin Railroad Commission authorized the Marshfield Telephone Co. of Marshfield to increase its net monthly rates for telephone service as follows:

| | | |
|---|---|---|
| Business, one-party | $3.50 | $4.25 |
| Business, two-party | 3.00 | 3.75 |
| Business, extension | .75 | 1.00 |
| Residence, one-party | 2.25 | 2.75 |
| Residence, two-party | 1.75 | 2.25 |
| Residence, four-party, wall | 1.40 | 1.60 |
| Residence, four-party, desk | 1.50 | 1.70 |
| Residence, extension | .60 | .75 |
| Rural business, multi-party | 2.00 | 2.00 |
| Rural residence, multi-party | 1.50 | 1.75 |

The new rates are authorized to be placed in effect for service rendered on and after April 1, 1930.

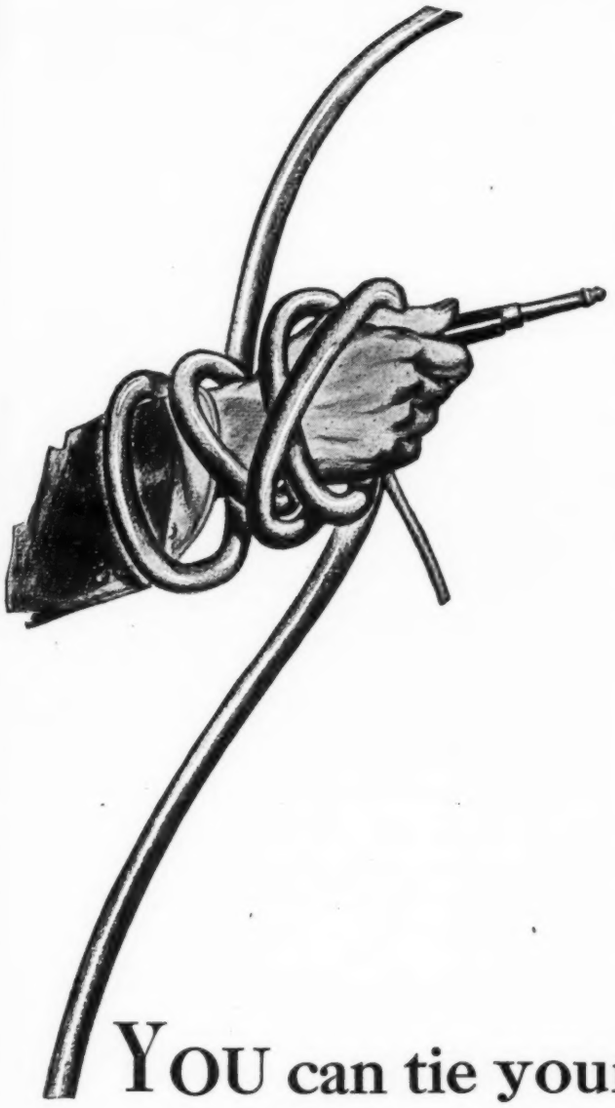
## Increased Rates at Sheboygan Falls (Wis.) Exchange.

The Wisconsin Railroad Commission recently authorized the Wisconsin Telephone Co. to place in effect a schedule of increased rates at its Sheboygan Falls exchange for service rendered on and after April 1. The net monthly rates are:

| | |
|---|---|
| One-party, business | $3.25 |
| Two-party, business | 2.75 |
| One-party, residence | 2.25 |
| Two-party, residence | 1.75 |
| Four-party, residence | 1.50 |
| Roadway service (annually) | 7.50 |

The company introduced exhibits dealing with the revenue situation and purporting to show that with the proposed increase in rates the company would still be earning less than a reasonable return upon the book value of the property. These exhibits were based upon the number of subscriber stations in service as of June 30, 1929, revenue earned during the 12 months ending June 20, 1929, and upon property and plant as of the same date.

The property and plant shown as of June 30, 1929, is $60,329,35, the commission stated, which, however, is considerably higher than the property and plant account either as of December 31, 1928, or as of December 31, 1929. Property and plant as of December 31, 1928, was $53,628.02 and as of December 31, 1929, $58,511.47, making an average of $56,064.75. To this should be added the general office prorate shown in the company's exhibit of



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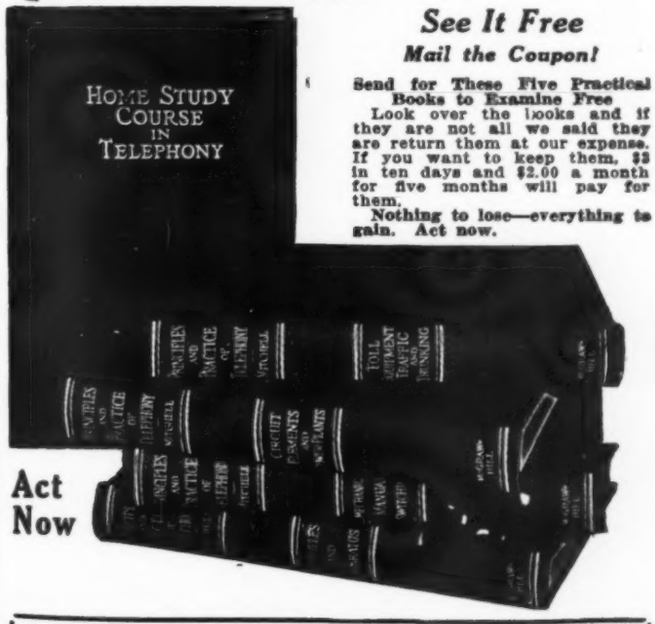


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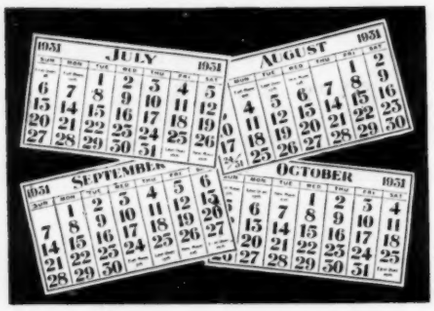


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$2,128.00 making a total of $58,192.75.

Exchange service revenues for the 12 months ending June 30, 1929, were $11,701.87 and miscellaneous operating revenue $9.13, making a total operating revenue of $11,711.00. Operating expenses before provision for return, as claimed in the company's exhibit, amounted to $13,093.64.

The commission found that the schedule of rates which the company proposed to place in effect was not fully justified but that, except as other and different rates are provided in the order, the schedule should be approved.

## Summary of Commission Rulings and Schedule of Hearings.

ILLINOIS.

March 29: Illinois Allied Telephone Co. granted permission to acquire the telephone business of the territory now served by the Bureau County Independent Telephone Co.

April 17: Hearing at Chicago before Chairman Hadley in the matter of the complaint of the city of Evanston, village of Oak Park and village of Wilmette relative to rates charged for service in those localities by the Illinois Bell Telephone Co.

INDIANA.

April 5: Petition filed by Johnson County Telephone Co. of Franklin for increased rates at its exchanges at Franklin, Trafalgar, Ninevah, Bargersville, Whiteland and Marietta. The rates asked for average approximately 30 per cent, increasing the monthly revenue from $2,800 to $3,800.

April 5: Patrons of Advance Telephone Co. at Advance, filed petition asking that the commission order rates reduced until such a time as the property will restore service to all its patrons. The petitioners claim toll charges now are being collected on all calls from nearby towns put through the Advance switchboard and such action is detrimental to their business.

April 7: Petition filed by 18 patrons of Advance Telephone Co. of Advance, Boone county, asking that the commission order rates reduced until such a time as the property will restore service to all of its patrons. Protest also made against toll charges being imposed on calls through switching connections at Lebanon, Jamestown, Hazelrigg, Max, Thorntown, Shannondale and New Ross.

April 11: Indiana Bell Telephone Co. ordered to re-establish service at Cowan and four other towns in Delaware county through its Muncie exchange. Service was discontinued after the company's lines were damaged by a severe sleet storm in January. Twenty-five patrons asked the public service commission to order the service re-established. Other towns affected are Mt. Pleasant, Oakville, Albany and Eaton.

April 11: F. M. Kreig, owner of a 2,300 volt power line near Knightstown, Ind., ordered to change the location of part of the line because it interferes with service of the Knightstown Telephone Co. Electrical induction from the power line rendered the telephone service bad, according to officials of the telephone company.

KANSAS.

April 21: Hearing on application of Kansas Telephone Co. for a certificate relating to a proposed issue of its first mortgage 6 per cent bonds in the amount of $100,000.

May 7: Hearing in the matter of the complaint of Hurst Majors, Major, Manhattan against the United Telephone Co.

May 8: Hearing in the matter of the complaint of John E. McCleery vs. the Esbon Telephone Co. as to inadequate service.

May 21: Hearing on application of Central Kansas Telephone Co. for permission to make certain changes in rates for service at Barnard.

MICHIGAN.

April 15: Hearing held in the matter of the rerouting of telephone lines by the Rollin Telephone Co., operating in Jackson county. The company plans to reroute lines starting at the northeast corner of the village of Cement City and traversing Columbia, Napoleon and Summit townships in Jackson county, and to connect with lines of the Michigan Bell Telephone Co. south of Jackson's city limits.

MINNESOTA.

May 13: Hearing in the matter of the petition of J. A. Jorgensen, E. R. Ruggles, Roy E. Dunn and W. H. Pay, a committee, representing the Minnesota Hotel & Restaurant Association, for a hearing on the matter of commissions and other compensation paid to hotel owners and operators furnishing service to telephone companies in Minnesota.

MISSOURI.

April 3: Application approved of Northside Telephone Co. to put into force collection rules at its Parkville exchange.

April 3: Application approved of North Central Telephone Co. to put in force collection rules at its Green City, Green Castle, Newtown, Lucerne, Harris, Pollock, and Boynton exchanges.

April 25: Hearing on application filed by Middle States Utilities Co. of Mo. to file amended rate schedule at Princeton.

NEBRASKA.

April 7: Application filed by the Lincoln Telephone & Telegraph Co. for authority to change its base area at its Lincoln exchange so as to take in territory outside the city limits; found reasonable and granted without a hearing.

April 8: Application filed by the Smithfield Telephone Co. to issue 200 shares of stock for the purpose of representing property in place for which no capital issue has heretofore been made.

April 8: Application filed by the Union Telephone Co. for authority to increase rates at its Carroll exchange.

April 9: In the matter of the application of the Lincoln Telephone & Telegraph Co. for authority to increase rates at its exchanges at Oak, Nora and Ruskin contingent upon substituting metallic magneto for grounded magneto; it appearing that the patrons at each exchange have almost unanimously requested the better grade of service and have agreed to pay the rates asked, authority granted without a hearing.

NEW YORK.

April 15: Hearing on motion of the commission as to rates, charges and rentals and regulations and practices, affecting the rates, charges and rentals of the New York Telephone Co.

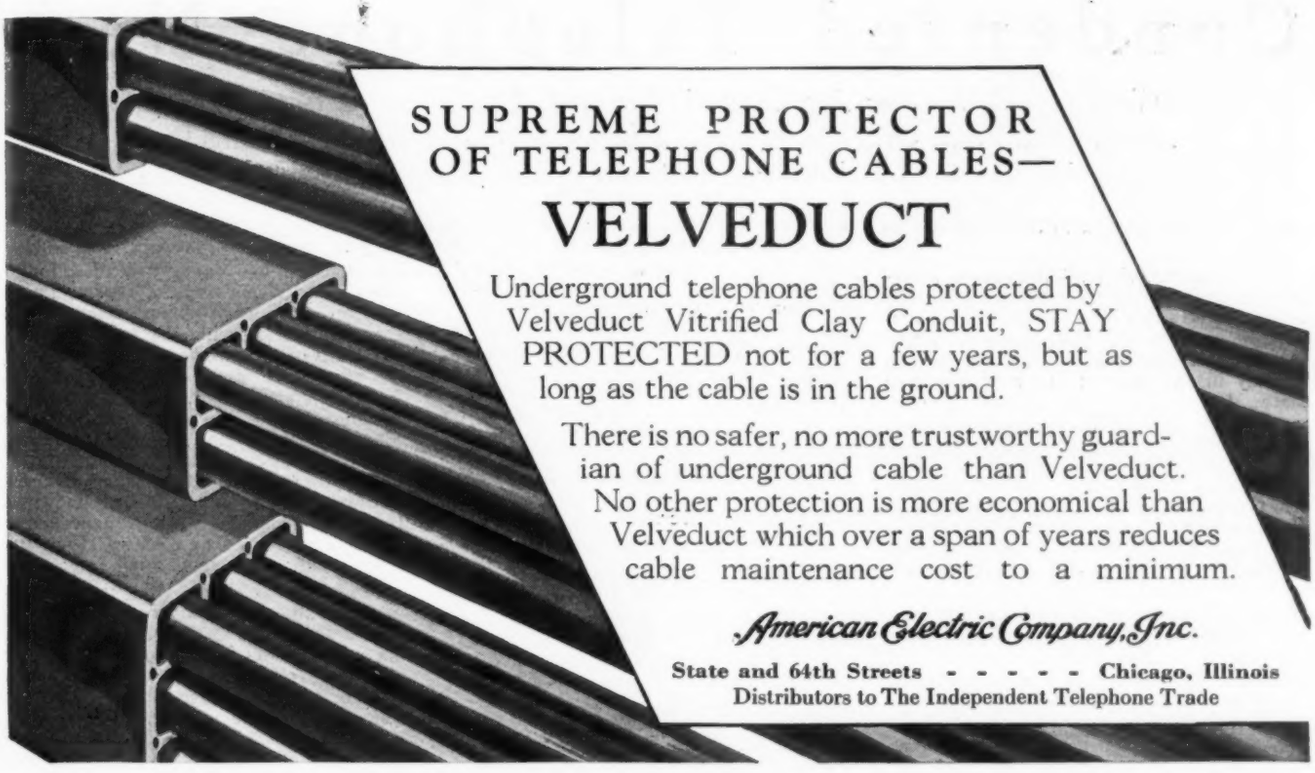
OHIO.

April 8: Authority asked by Ohio Bell Telephone Co. for permission to revise its schedule in the Tiffin exchange area.

OKLAHOMA.

April 3: Southwest Telephone Co. authorized to purchase from James Thompson the telephone exchanges located at Hooker and Baker, including toll lines and other equipment.

April 18: Hearing at Laverne in the matter of the complaint of B. Richardson vs. J. M. Keffer, Standard Telephone Co., alleging unsatisfactory service.



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# Condensed Telephone News

## Officers of Companies Are Urgently Requested to Forward to Us Promptly All Financial and Other Statements as Soon as Issued and Any Items Relating to Construction, Rebuilding, or Changes in Their Plants and Systems

### New Incorporations and New Telephone Companies.

HOT SPRINGS, S. D.—Articles of incorporation were filed with the secretary of state recently for the Fall River Rural Telephone Co., at Hot Springs, which is formed to maintain a telephone system already in existence in this section of the state. It is capitalized at $1,000. The incorporators are J. W. Coleman, V. W. Willoughby, Al Billup, Ed. H. Dueneiman, J. K. Burg, all of Hot Springs.

DEL RIO, TEXAS—The Del Rio & Winter Garden Telephone Co., of which L. Rust, is general manager, is being formed by merger of Del Rio & Western, Laredo Southwestern and Transpecos companies, having 7,000 miles of toll pole lines. Other incorporators include W. F. Boggess and J. V. Rucker.

### Elections.

GREENE, IOWA—Decision was made recently by stockholders of the Greene Mutual Telephone Co., launched some months ago, to operate a home-owned telephone exchange, to proceed with the organization. Dayton Mather was elected president of the organization; Guy Clikeman, vice-president; R. E. Kirk, secretary-treasurer; T. W. Dolan, W. H. Cheney, Charles Hurd and Fred Rover, directors. Stock is being issued at $15 a share and to be a subscriber or patron of the company the individual must hold stock, which will be taken up when he moves. Preferred stock is issued at $35 a share, bearing 7 per cent interest. More than half the $40,000 required budget has been subscribed.

SPRINGTOWN, PA.—Officers of the Franklin Telephone & Telegraph Co., recently elected are: President, Delbert Bachman, Durham; secretary, Harry W. Weierbach, Pleasant Valley; treasurer, Levi D. Stever, Springtown; additional directors, Harvey K. Riegel, Durham; Wilbur K. Frey, Springtown and Stover S. Snyder, Pleasant Valley. The organization has 102 subscribers.

### Construction.

CHICAGO, ILL.—At its recent meeting the board of directors of Illinois Bell Telephone Co. approved an expenditure of $2,936,519 for new plant in the city of Chicago and $1,661,148 for Illinois outside of Chicago, making a total of $4,597,667. The total approved for this year is $8,183,862.

MATTOON, ILL.—Telephone service between Mattoon and Paradise station of the municipal water plant has been restored after being cut off for three months on account of the destructive sleet storm. About three-fourths of the Illinois Southeastern Telephone Co. plant has been restored. The company has been compelled to rebuild the entire county plant. Twenty-six car loads of new poles have been necessary in doing this.

ONEIDA, ILL.—Manager M. E. Howe of the Oneida Telephone Co. reports that his company has been doing extensive construction work during the past year. Two car loads of butt-treated poles and 41 miles of wire were used at a cost of $3,200. Four grounded circuits were replaced with metallic circuits. This year's work consists of metallicizing two rural lines and one trunk circuit, making a total of 18 miles of new metallic balanced circuits finished, leaving only one grounded line trunk to Nokoma. Many improvements have been made since Mr. Howe took charge eight years ago.

FORT WAYNE, IND.—With the advent of warm weather, the plant department of the Home Telephone & Telegraph Co., is making rapid strides in outdoor work. A new and long cable has just been cut into service and will relieve the congested cable connection in one district. The new east end underground toll entrance cable has been cut into service and the old aerial plant now is about ready to be moved.

WEST BEND, IOWA—Many improvements are planned by the West Iowa Telephone Co., which operates in northwestern Iowa, with headquarters here.

In Anita, Iowa, an office has just been finished, with new underground cables, costing $8,000; a new office and equipment in Marcus, Iowa, will cost $20,000, while underground cables will be laid in West Bend and a new farm circuit extension out of Alton. This firm is financed entirely by northwestern Iowans. Officers are: H. J. Reimers, general manager; Peter Eulberg, commercial manager; W. H. Daubendiek, secretary-treasurer; C. H. Daubendiek, assistant secretary-treasurer; Frank Mehuren, Alton manager; Terrence Sheahan, Quimby, manager; Irwin Shellmeyer, West Bend, manager; Clinton Weber, Marcus, manager.

The company serves 3,000 patrons, and specializes in serving farmers.

MOUNTAIN GROVE, MO.—The Western Telephone Corp. will erect a $45,000 exchange here within the next few months.

NEW YORK, N. Y.—The board of directors of the New York Telephone Co. authorized the expenditure of $16,559,190 for new construction throughout the state, at the regular monthly meeting held March 26, according to an announcement made by J. S. McCulloh, president. This brings the total appropriations since the beginning of the year to $41,149,200, of which $35,911,460 has been set aside for additions to facilities in the Metropolitan area.

CELINA, OHIO—Manager Paul R. Christy, of the Celina & Mercer County Telephone Co. announces the installation of an additional toll board in the exchanges in Celina which will facilitate the making of toll calls throughout the county. All toll boards have been changed to handle long distance calls by the C. L. R. method. The company will add a number of toll lines during the summer to provide better service between the exchanges in the county.

MEDINA, OHIO—The Northern Ohio Telephone Co. will soon start the work of


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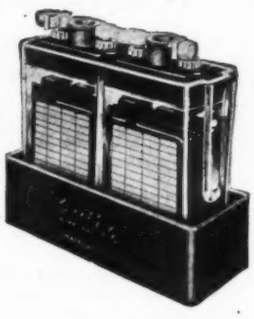

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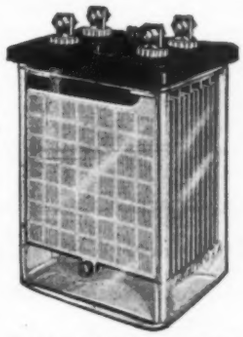

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placing its cables in the business section of Medina underground. The offices and exchange will also be removed from the present building to the new offices and exchange in the old Nichols building on East Washington street. This building is undergoing remodeling for the exchange and general offices. W. A. Henry, secretary-treasurer and general manager of the local exchange said: "The complete rebuilding of our Medina exchange area, including the placing of the down-town distribution system in underground conduits, is one of the major items in our construction program. In addition, all rural lines are now being rehabilitated in preparation for the full harmonic ringing and common battery service. A considerable amount of aerial cable which is defective or inadequate is being replaced. The work will mean the laying underground of 23,360 feet of two, four and six-way clay conduit in the business section. Over 6,000 feet of lead cable carrying from 200 pairs to 600 pairs of wires will be placed in the conduits. With the completion of the program which includes the opening of a new exchange, we will be able to furnish our subscribers in this area with a much better and faster service."

## Miscellaneous.

FARMINGTON, ILL.—The Farmington Telephone Co. has bought two more country lines covering the territory southwest and west of town.

CLINTON, KY.—Roy Norman was elected general manager of the Clinton Telephone Co. at a recent meeting of the stockholders. Mr. Norman succeeds I. Bradberry, who had been general manager of the telephone company properties here for several years.

CALHOUN CITY, MISS.—The general offices of the Southern States Utilities Co., owning the exchange here, will be moved from Fayette, Ala., to Calhoun City.

VERDIGRE, NEB.—At a meeting of the board of directors of the Washington & Western Telephone Co., held here recently it was voted to sell the holdings of the company to Ross J. McCoy for $19,000, the sale being made subject to the approval of the stockholders. A meeting to vote on the proposition will be called soon.

Mr. McCoy, it is said, represents a large public service corporation which has taken over the exchanges at Lynch, Verdel and several other places in this section. Bloomfield and Randolph, according to reports, are other towns in which the company will take over the telephone property.

LEONARDSVILLE, N. Y.—Stockholders of the Leonardsville Telephone Co. have unanimously voted to sell the company lines and franchises to the Chenango & Unadilla Telephone Corp. for the sum of $4,000. Work on reconstruction of lines will be started soon.

MARION, OHIO—Claiming that storms during the past year caused damage of $25,000 to the company's property, Jerry Carroll and M. R. Stern recently filed in common pleas court a petition for appointment of a receiver for the La Rue Telephone Co.

The petition stated that the storm damage cost the company so much that it now is unable to meet its current obligations.

REDFIELD, S. D.—I. R. Kidder, local manager for the Dakota Central Telephone Co., has resigned his position here because of ill health. Coming here from Lake Preston, where he held a similar position for many years, Mr. Kidder has been an efficient and courteous manager.

His position will be taken by Mr. Earl Bailor formerly of Geddes, where he has made a splendid record in a similar position.


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